# CAM4xxx Series

# User Manual

Release 2.3

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# Revision History

| Version | Description | Date |
|---|---|---|
| 1.0 | Initial release: All the CAM4xxx series models are put into this manual; both hardware and software aspects are covered. | April 2012 |
| 1.1 | New model: CAM4311/4371 added. | June 2012 |
| 1.2 | New model: CAM4321 added. | September 2012 |
| 1.3 | New models added. | August 2013 |
| 1.4 | UI Modified. | November 2013 |
| 1.5 | Add new controller icons | December 2013 |
| 1.6 | New models CAM4221/4211 added<br>EOL models removed | January 2014 |
| 1.7 | New model: CAM4471MP added | February 2014 |
| 1.8 | Installation methods of CAM42xx added | February 2014 |
| 1.9 | New models CAM4351R2/4361RV/ 4361LV/4311S2/4321SV/4321LV added<br>EOL models removed | May 2014 |
| 2.0 | New models added | July 2014 |
| 2.1 | New models CAM4371HEM, CAM4371HEV added.<br>Old models CAM4311, CAM4321 removed. | April 2015 |

| | | |
|---|---|---|
| 2.2 | New models CAM4471HEM, CAM4471HEV added. | June 2015 |
| 2.3 | New models CAM4411S2/S3/S4/S6 added<br>EOL models removed | Aug. 2015 |

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# Safety Precautions

## Electric Shock Warning

This equipment may cause electric shocks if not handled properly.

- Access to this equipment should only be granted to trained operators and maintenance personnel who have been instructed of, and fully understand the possible hazardous conditions and the consequences of accessing non-field-serviceable units such as the power supplies.
- The system must be unplugged before moving, or in the event that it becomes damaged.

## Reliable Grounding

Particular attention should be given to prepare reliable grounding for the power supply connection. It is suggested to use a direct connection to the branch circuit. Check for proper grounding before powering on the device.

## Overloading Protection

The device should be installed according to specifications. Provide a suitable power source with electrical overload protection. Do not overload the AC supply branch circuit that provides power to the device.

## ESD Precautions

Please observe all conventional anti-ESD methods while handling the device. The use of a grounded wrist strap and an anti-static work pad are recommended. Avoid dust and debris in your work area.

# Device Site Recommendations

The device should be installed according to specifications. This device should be operated at a site that is:

- Clean, dry, and free of excessive airborne particles.
- Well-ventilated and away from heat sources such as direct sunlight and radiators.
- Clear of vibration or physical shock.
- Away from strong electromagnetic fields produced by other devices.
- Available with properly grounded wall outlet for power. In regions where power sources are unstable, apply surge suppression.
- Available with sufficient space behind the device for cabling.

# Chapter 1. Product Overview

## 1.1. Network Camera Introduction

CAM4xxx series are professional network cameras that use Internet Protocol (IP) to transmit video streams and control signals over networks. Capable of operating over both LANs and WANs, they provide a complete budget-conscious remote surveillance solution that are ultra clear and highly integrated. CAM4xxx series combine a user-friendly interface and simplified installation with a powerful feature set to provide users an easy upgrade path to new digital surveillance system in a virtual environment. These highlights make CAM4xxx series ideal choices for environments that require remote surveillance or video transmission.

## 1.2. Features and Benefits

4xxx series IP camera is a cutting-edge digital video transmission device. It can compress and transmit real-time images of outstanding quality using a reasonable amount of bandwidth through a standard TCP/IP network. The following features make this IP camera an outstanding choice when building an intelligent IP surveillance system:

- High Video Quality

  High image quality is essential in security surveillance applications. It is important to be able to clearly capture an incident in progress and identify persons or objects involved. A network camera gives exceptional video quality, even greater than that of traditional analog cameras, which means that more detail or larger areas can be covered.

- H.264/MPEG-4/MJPEG Compression

  Motion JPEG, MPEG-4, and H.264 (also known as MPEG-4 Part 10/AVC), each employ different techniques to reduce the amount of data transferred and stored in a network video system. Network cameras that support multiple compression standards are ideal for maximum flexibility and integration possibilities.

- Dual Streaming

  Dual-stream design enables simultaneous support of real-time video monitoring, video recording, or mobile viewing applications which require different resolutions, compression formats and frame rates.

- MicroSD/SDHC card slot

  IP surveillance relies on network connectivity, making it susceptible to attacks on the network between the camera and recording facilities. With onboard recording capability, our network cameras can truly be online 24/7. The microSD/SDHC card slot design ensures sufficient recording capacity for an over-weekend period even at full frame rate and high resolution.

- Tampering Detection

  This is an intelligent video analytics application available only in selected network cameras in the market. When a camera is manipulated in any way (e.g. accidental redirection, blocking, defocusing, spray-painted, covered or damaged), it can automatically trigger recording and alert notifications.

- Power-over-Ethernet

The built-in Power-over-Ethernet support reduces cabling and installation costs, and enables users to consolidate power facilities for higher reliability. With PoE, a camera can still operate in the event of a power failure if it is connected to a centralized backup power with an Uninterruptible Power Supply.

- IR LED Illuminators

With the built-in IR illuminators, the camera is capable of working in low light conditions, with a range up to 15m.

# 1.3. Technical Specifications

## Model List for CAM4xxx Series

| | |
|---|---|
| CAM4211 | MP Indoor Dome Network Camera |
| CAM4221 | MP Indoor Dome Network Camera |
| CAM4311S2 | 2MP Indoor Dome Network Camera |
| CAM4321SV | 2MP Indoor Dome Network Camera |
| CAM4321LV | 2MP Indoor Dome Network Camera |
| CAM4351R2 | 2MP Outdoor Dome Network Camera |
| CAM4361RV | 2MP Outdoor Dome Network Camera |
| CAM4361LV | 2MP Outdoor Dome Network Camera |
| CAM4371HEM | 2MP Outdoor Dome Network Camera |
| CAM4371HEV | 2MP Outdoor Dome Network Camera |
| CAM4421LV | 3MP Indoor Dome Network Camera |
| CAM4461LV | 3MP Outdoor Dome Network Camera |
| CAM4471V | 3MP Outdoor Dome Network Camera |
| CAM4471M | 3MP Outdoor Dome Network Camera |
| CAM4471MP | 3MP Outdoor Dome Network Camera |
| CAM4471HEM | 3MP Outdoor Dome Network Camera |
| CAM4471HEV | 3MP Outdoor Dome Network Camera |
| CAM4521LV | 5MP Indoor Dome Network Camera |
| CAM4561LV | 5MP Outdoor Dome Network Camera |
| CAM4571M | 5MP Outdoor Dome Network Camera |
| CAM4571MP | 5MP Outdoor Dome Network Camera |
| CAM4571VP | 5MP Outdoor Dome Network Camera |
| CAM4411S2 | 3MP Indoor Dome Network Camera |
| CAM4411S3 | 3MP Indoor Dome Network Camera |
| CAM4411S4 | 3MP Indoor Dome Network Camera |
| CAM4411S6 | 3MP Indoor Dome Network Camera |

## Specifications for CAM4211/4221

| Model Name | **CAM4211** | **CAM4221** |
|---|---|---|
| Description | Megapixel Day&Night 3-Axis Fixed Dome Network Camera | Megapixel Day&Night 3-Axis Dome Network Camera |
| Image Sensor | 1/4" megapixel progressive scan CMOS | |
| Lens | f2.8 mm, F1.8 | f2.8-12 mm varifocal lens, F1.4 |
| SNR | 48dB | |
| WDR | Yes | |
| Day/Night ICR | Yes | |
| IR LED | Yes (10M) | N/A |
| Min Illumination | 0.01 Lux @ F1.8 (B/W)<br>0.1 Lux @ F1.8 (Color) | 0.01 Lux @ F1.4 (B/W)<br>0.1 Lux @ F1.4 (Color) |
| Iris Control | Fixed | Fixed |
| Viewing Angle | Diagonal: 92°<br>Horizontal: 79°<br>Vertical: 49° | Diagonal: 87.6°~27.83°<br>Horizontal: 73°~23.4°<br>Vertical: 44.8°~14.8° |
| Camera Angle Adjustment | Pan 0º ~340º<br>Tilt 20º ~90º<br>Rotate Σ170 º | Pan 0º ~340º<br>Tilt 20º ~90º<br>Rotate Σ110 º |
| Pan/Tilt/Zoom Functionalities | N/A | |
| Shutter Time | 1/2 ~ 1/50,000 s | |
| Video Compression | H.264/MJPEG | |
| Resolution | Up to 1280 x 800 | |
| Video FPS | 30 fps at WXGA (1280 x 800)<br>30 fps at HD720 (1280 x 720)<br>30 fps at D1 (720 x 480)<br>30 fps at VGA (640 x 480)<br>30 fps at QVGA (320 x 240) | |
| Video Control | AGC (Auto Gain Control),<br>AWB (Auto White Balance),<br>AES (Auto Electronic Shutter),<br>BLC (Back Light Compensation),<br>Image Adjustment | |
| Video Stream | Dual stream at H.264 and MJPEG simultaneously | |
| Bit Rate | 64K ~ 10Mbps, VBR, CBR, controller frame rate and quality | |
| Intelligent Video | Motion Detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | |
| Video Jack | N/A | |
| Audio | Yes | |
| Audio Compression | 16KHz, ADPCM/G.711 | |
| Audio Input/Output | 3.5mm phone jack (optional) | |
| Alarm In/Out | 1, terminal block (optional) | |

| | | |
|---|---|---|
| Video Buffer | 5 second pre-alarm, 5 second post-alarm | |
| Event Action | Send snapshot or video clip by FTP or email, record to NAS, record to local storage, trigger DO | |
| Supported Protocols | IPv4, ARP, TCP, UDP, ICMP, IGMP, DHCP, NTP, DDNS, SMTP, FTP, HTTP, CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP, ONVIF | |
| Ethernet | 10/100 Base-T / RJ45 | |
| Local Storage | microSD/SDHC x 1<br>(Class 4/Class 6) | |
| RS-485 | N/A | |
| USB | N/A | |
| SDK | SDK 2.0 | |
| OS | Microsoft Windows XP/Vista/7 | |
| Browser | Microsoft IE 6.0 or above | |
| Software | VMS 2.5 | |
| Temperature | Operation: -10°C~ 50°C (14°F~122°F) | |
| Humidity | 5 to 90% | |
| Power | 12VDC 1.5A ; PoE (IEEE 802.3af) with Class 3 | |
| Power Consumption | Max. 7W | Max. 5W |
| Dimension | o110mm x 100mm (H) | o110mm x 100mm (H) |
| Weight | Net: 345g<br>Gross: 5850g | Net: 345g<br>Gross: 5850g |
| Certification | Safety: LVD<br>EMC: FCC, CE | |

# Specifications for CAM4421LV/4461LV/4521LV/4561LV

| Model Name | **CAM4421LV** | **CAM4461LV** | **CAM4521LV** | **CAM4561LV** |
|---|---|---|---|---|
| Description | 3 MP 3-Axis D/N Fixed Dome Network Camera | 3 MP 3-Axis D/N Outdoor Fixed Dome Network Camera | 5P MP 3-Axis D/N Fixed IP Dome | 5MP 3-Axis D/N Outdoor Fixed IP Dome |
| Image Sensor | 1/2.5" 5 megapixel progressive scan CMOS | | | |
| Lens | f3-10.5 mm varifocal lens, F1.4 | | | |
| SNR | 48dB | | | |
| WDR | Yes | | | |
| Day/Night ICR | Yes | | | |
| IR LED | Yes (20M) | | | |
| Min Illumination | 0.01 Lux @ F1.4 (B/W)<br>0.1 Lux @ F1.4 (Color) | | | |
| Iris Control | Auto Electronic Control | | | |
| Viewing Angle | Diagonal: 130° - 38°<br>Horizontal: 108° - 32°<br>Vertical: 58° - 18° | | | |
| Camera Angle Adjustment | Pan 0º ~340º<br>Tilt 20º ~90º<br>Rotate Σ110 º | | | |
| Pan/Tilt/Zoom Functionalities | N/A | | | |
| Shutter Time | 1/1 ~ 1/ 1,000,000 s | | | |
| Video Compression | H.264/MPEG-4/MJPEG | | | |
| Resolution | Up to 2048 x 1536 | | Up to 2560 x 1920 | |
| Video FPS | 20 fps at QXGA (2048 x 1536)<br>30 fps at 1080P (1920 x 1080)<br>30 fps at SXGA (1280 x 1024)<br>30 fps at 720P (1280 x 720)<br>30 fps at D1 (720 x 480)<br>30 fps at VGA (640 x 480)<br>30 fps at QVGA (320 x 240) | | 12 fps at QSXGA (2560 x 1920)<br>20 fps at QXGA (2048 x 1536)<br>30 fps at 1080P (1920 x 1080)<br>30 fps at SXGA (1280 x 1024)<br>30 fps at 720P (1280 x 720)<br>30 fps at D1 (720 x 480)<br>30 fps at VGA (640 x 480)<br>30 fps at QVGA (320 x 240) | |
| Video Control | AGC (Auto Gain Control),<br>AWB (Auto White Balance),<br>AES (Auto Electronic Shutter),<br>Luminance Control, WDR,<br>2D/3D De-noise, ROI, Edge Enhancement,<br>Lens Correction, image adjustment | | | |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously | | | |
| Bit Rate | 64K ~ 10Mbps, VBR, CBR, controller frame rate and quality | | | |
| Intelligent Video | Motion Detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | | | |

| | | | | |
|---|---|---|---|---|
| Video Jack | N/A | | | |
| Audio | Yes | | | |
| Audio Compression | 16KHz, ADPCM/G.711 | | | |
| Audio Input/Output | 3.5mm phone jack (optional) | | | |
| Alarm In/Out | 1, terminal block in/out (optional) | | | |
| Video Buffer | 5 second pre-alarm, 30 second post-alarm | | | |
| Event Action | Send snapshot or video clip by FTP or email,<br>record to NAS, record to NAS, trigger DO | | | |
| Supported Protocols | IPv4, ARP, TCP, UDP, ICMP, IGMP, DHCP, NTP, DDNS, SMTP, FTP, HTTP,<br>CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP, ONVIF | | | |
| Ethernet | 10/100 Base-T / RJ45 | | | |
| Local Storage | microSD/SDHC x 1<br>(Class 4/Class 6 only) | | | |
| RS-485 | N/A | | | |
| USB | N/A | | | |
| SDK | SDK 2.0 | | | |
| OS | Microsoft Windows XP/Vista/7 | | | |
| Browser | Microsoft IE 6.0 or above | | | |
| Software | VMS 2.6 | | | |
| Temperature | Operation: -10°C~ 50°C (14°F~122°F) | | | |
| Humidity | 5 to 90% | | | |
| Power | PoE (IEEE 802.3af) with Class 3 | | | |
| Power Consumption | Max. 6.3W<br>(w/o Heater) | Max. 8W<br>(w/o Heater) | Max. 6.3W<br>(w/o Heater) | Max. 8W<br>(w/o Heater) |
| Dimension | ø110mm x 100mm (H) | | | |
| Weight | Net: 345g<br>Gross: 585g | | | |
| Certification | Safety: LVD<br>EMC: FCC, CE | | | |

# Specifications for CAM4311S2/4321SV/4321LV

| Model Name | **CAM4311S2** | **CAM4321SV** | **CAM4321LV** |
|---|---|---|---|
| Description | 2MP D/N<br>3-Axis Fixed IP Dome | 2MP D/N<br>3-Axis Fixed IP Dome | 2MP D/N<br>3-Axis Fixed IP Dome |
| Image Sensor | 1/2.8" 2 megapixel SONY Exmor CMOS | | |
| Lens | f2.8 mm, F1.8 | f2.8-12mm varifocal lens, F1.4 | |
| SNR | 48dB | | |
| WDR | Yes | | |
| Day/Night ICR | Yes | | |
| IR LED | Yes (10M) | N/A | |
| Min Illumination | 0.01Lux @ F1.8 (B/W)<br>0.1 Lux @ F1.8 (Color) | 0.01 Lux @ F1.4 (B/W)<br>0.1 Lux @ F1.4 (Color) | |
| Iris Control | Auto Electronic Control | | |
| Viewing Angle | Diagonal: 135°<br>Horizontal: 105°<br>Vertical: 87° | Diagonal: 138°~40°<br>Horizontal: 95.5°~30.8°<br>Vertical: 79°~23.3° | |
| Camera Angle Adjustment | Pan 0º ~340º<br>Tilt 20º ~90º<br>Rotate Σ110 º | | |
| Pan/Tilt/Zoom Functionalities | N/A | | |
| Shutter Time | 1/1 ~ 1/ 1,000,000 s | | |
| Video Compression | H.264/MPEG-4/MJPEG | | |
| Resolution | Up to 1920 x 1080 | | |
| Video FPS | 30 fps at 1080P (1920 x 1080)<br>30 fps at SXGA (1280 x 1024)<br>30 fps at HD720 (1280 x 720)<br>30 fps at D1 (720 x 480)<br>30 fps at VGA (640 x 480)<br>30 fps at QVGA (320 x 240) | | |
| Video Control | AGC (Auto Gain Control),<br>AWB (Auto White Balance),<br>AES (Auto Electronic Shutter),<br>Luminance Control, WDR,<br>2D/3D De-noise, ROI, Edge Enhancement,<br>Lens Correction, image adjustment | | |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously | | |
| Bit Rate | 64K ~ 10Mbps, VBR, CBR, controller frame rate and quality | | |
| Intelligent Video | Motion Detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | | |
| Video Jack | N/A | | |
| Audio | Yes | | |
| Audio Compression | 16KHz, ADPCM/G.711 | | |

| | | | |
|---|---|---|---|
| Audio Input/Output | 3.5mm phone jack (optional) | | |
| Alarm In/Out | 1, terminal block in/out (optional) | | |
| Video Buffer | 5 second pre-alarm, 30 second post-alarm | | |
| Event Action | Send snapshot or video clip by FTP or email,<br>record to NAS, record to NAS, trigger DO | | |
| Supported Protocols | IPv4, ARP, TCP, UDP, ICMP, IGMP, DHCP, NTP, DDNS, SMTP, FTP, HTTP,<br>CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP, ONVIF | | |
| Ethernet | 10/100 Base-T / RJ45 | | |
| Local Storage | microSD/SDHC x 1<br>(Class 4/Class 6 only) | | |
| RS-485 | N/A | | |
| USB | N/A | | |
| SDK | SDK 2.0 | | |
| OS | Microsoft Windows XP/Vista/7 | | |
| Browser | Microsoft IE 6.0 or above | | |
| Software | VMS 2.6 | | |
| Temperature | Operation: -10°C~ 50°C (14°F~122°F) | | |
| Humidity | 5 to 90% | | |
| Power | PoE (IEEE 802.3af) with Class 3 | | |
| Power Consumption | Max. 6.5W | Max. 5W | Max. 6.5W |
| Dimension | ø110mm x 100mm (H) | | |
| Weight | Net: 345g<br>Gross: 585g | | |
| Certification | Safety: LVD<br>EMC: FCC, CE | | |

# Specifications for CAM4351R2/4361RV/4361LV

| Model Name | **CAM4351R2** | **CAM4361RV** | **CAM4361LV** |
|---|---|---|---|
| Description | 2MP 3-Axis D/N Outdoor Fixed IP Dome | 2MP 3-Axis D/N Outdoor Fixed IP Dome | 2MP 3-Axis D/N Outdoor Fixed IP Dome |
| Image Sensor | 1/2.8" 2 megapixel SONY Exmor CMOS | | |
| Lens | f2.8 mm, F1.8 | f2.8-12 mm varifocal lens, F1.4 | |
| SNR | 48dB | | |
| WDR | Yes | | |
| Day/Night ICR | Yes | | |
| IR LED | Yes (10M) | N/A | Yes (20M) |
| Min Illumination | 0.01 Lux @ F1.8 (B/W)<br>0.1 Lux @ F1.8 (Color) | 0.01 Lux @ F1.4 (B/W)<br>0.1 Lux @ F1.4 (Color) | |
| Iris Control | Auto Electronic Control | | |
| Viewing Angle | Diagonal: 135°<br>Horizontal: 105°<br>Vertical: 87° | Diagonal: 138°~40°<br>Horizontal: 95.5°~30.8°<br>Vertical: 79°~23.3° | |
| Camera Angle Adjustment | Pan 0º ~340º<br>Tilt 20º ~90º<br>Rotate Σ10º | | |
| Pan/Tilt/Zoom Functionalities | N/A | | |
| Shutter Time | 1/1 ~ 1/1,000,000 s | | |
| Video Compression | H.264/MPEG-4/MJPEG | | |
| Resolution | Up to 1920 x 1080 | | |
| Video FPS | 35 fps at 1080P (1920 x 1080)<br>30 fps at SXGA (1280 x 1024)<br>30 fps at HD720 (1280 x 720)<br>30 fps at D1 (720 x 480)<br>30 fps at VGA (640 x 480)<br>30 fps at QVGA (320 x 240) | | |
| Video Control | AGC (Auto Gain Control), AWB (Auto White Balance), AES (Auto Electronic Shutter), Luminance Control, WDR, 2D/3D De-noise, ROI, Edge Enhancement, Lens Correction, image adjustment | | |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously | | |
| Bit Rate | 64K ~ 10Mbps, VBR, CBR, controller frame rate and quality | | |
| Intelligent Video | Motion detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | | |
| Video Jack | N/A | | |
| Audio | N/A | | |
| Audio Compression | N/A | | |
| Audio Input/Output | N/A | | |
| Alarm In/Out | N/A | | |

| | | | |
|---|---|---|---|
| Video Buffer | 5 second pre-alarm, 30 second post-alarm | | |
| Event Action | Send snapshot or video clip by FTP or email, record to NAS, record to local storage, trigger DO | | |
| Supported Protocols | IPv4, ARP, TCP, UDP, ICMP, DHCP, NTP, DDNS, SMTP, FTP, HTTP, CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP | | |
| Ethernet | 10/100 Base-T / RJ45 | | |
| Local Storage | microSD/SDHC x 1<br>(Class 4/Class 6) | | |
| RS-485 | N/A | | |
| USB | N/A | | |
| SDK | SDK 2.0 | | |
| OS | Microsoft Windows XP/Vista/7 | | |
| Browser | Microsoft IE 6.0 or above | | |
| Software | VMS 6 | | |
| Temperature | Operation: -10°C~ 50°C (-14°F~122°F) | | |
| Humidity | 5 to 90% | | |
| Power | PoE (IEEE 802.3af) with Class 3 | | |
| Power Consumption | Max. 6.5W<br>(w/o Heater) | Max. 5W | Max. 7W<br>(w/o Heater) |
| Dimension | ø130mm x 103mm (H) | | |
| Weight | Net: 950g<br>Gross: 1550g | Net: 965g<br>Gross: 1565g | |
| Certification | Safety: LVD<br>EMC: FCC, CE, IP66 | | |

# Specifications for CAM4411S2/S3/S4/S6

| Model Name | **CAM4411S2/S3/S4/S6** |
|---|---|
| Description | 3MP 3-Axis Day & Night Fixed Dome Network Camera |
| Image Sensor | 1/3" megapixel progressive scan CMOS |
| Lens | 4411S2: f2.8 mm, F1.8<br>4411S3: f3.6 mm, F1.8<br>4411S4: f4.2 mm, F1.8<br>4411S6: f6.0 mm, F2.0 |
| SNR | 48dB |
| WDR | Yes |
| Day/Night ICR | Yes |
| IR LED | Yes (20M) |
| Min Illumination | 0.01 Lux @ F1.8 (B/W)<br>0.1 Lux @ F1.8 (Color) |
| Iris Control | Fixed |
| Viewing Angle | 4411S2: Diagonal: 128°, Horizontal: 98°, Vertical:81.5°<br>4411S3: Diagonal: 100°, Horizontal: 78°, Vertical: 62.5°<br>4411S4: Diagonal: 89°, Horizontal: 71°, Vertical: 49.5°<br>4411S6: Diagonal: 60.5°, Horizontal: 52.4°, Vertical: 29° |
| Camera Angle Adjustment | Pan 0º ~340º<br>Tilt 20º ~90º<br>Rotate ±170º |
| Pan/Tilt/Zoom Functionalities | N/A |
| Shutter Time | 1/1 ~ 1/10,000 s |
| Video Compression | H.264/MPEG-4/MJPEG |
| Resolution | Up to 2018 x 1536 |
| Video FPS | 25 fps at QXGA (2048 x 1536)<br>30 fps at 1080P (1920 x 1080)<br>30 fps at SXGA (1280 x 1024)<br>30 fps at HD720 (1280 x 720)<br>30 fps at D1 (720 x 480)<br>30 fps at VGA (640 x 480)<br>30 fps at QVGA (320 x 240) |
| Video Control | AGC (Auto Gain Control),<br>AWB (Auto White Balance),<br>AES (Auto Electronic Shutter),<br>BLC (Back Light Compensation),<br>WDR,<br>2D/3D De-noise,<br>ROI,<br>Edge Enhancement,<br>image adjustment |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously |
| Bit Rate | 32K ~ 10Mbps, VBR, CBR, controller frame rate and quality |

| | |
|---|---|
| Intelligent Video | Motion detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) |
| Video Jack | N/A |
| Audio | Built-in MIC |
| Audio Compression | 16KHz, ADPCM/G.711 |
| Audio Input/Output | 3.5mm phone jack (optional) |
| Alarm In/Out | 1, terminal block (optional) |
| Video Buffer | 5 second pre-alarm, 30 second post-alarm |
| Event Action | Send snapshot or video clip by FTP or email, record to NAS, record to local storage, trigger DO |
| Supported Protocols | IPv4, IPv6, ARP, TCP, UDP, ICMP, IGMP, DHCP, NTP, DDNS, SMTP, SNMP, FTP, HTTP, HTTPS, CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP, ONVIF |
| Ethernet | 10/100 Base-T / RJ45 |
| Local Storage | microSD/SDHC x 1 |
| RS-485 | N/A |
| USB | N/A |
| SDK | SDK 2.0 |
| OS | Microsoft Windows 7/8 |
| Browser | Microsoft IE 8.0 or above |
| Software | VMS 2.5 |
| Temperature | Operation: -10°C~ 50°C (14°F~122°F) |
| Humidity | 5 to 90% |
| Power | 12VDC 1.5A ; PoE (IEEE 802.3af) with Class 3 |
| Power Consumption | Max. 7W (w/o Heater )<br>Max. 15.4W (w/ Heater & PoE 802.3af) |
| Dimension | ø110mm x 100mm (H) |
| Weight | Net: 345g<br>Gross: 585g |
| Certification | Safety: LVD<br>EMC: FCC, CE |

# Specifications for CAM4471V/4471M/4471MP

| Model Name | **CAM4471V** | **CAM4471M** | **CAM4471MP** |
|---|---|---|---|
| Description | 3M HDR D/N Outdoor IP Fixed Dome | | 3M Auto Focus D/N Outdoor IP Fixed Dome |
| Image Sensor | 1/3" 3 megapixel progressive scan CMOS | | |
| Lens | 2.8 - 12 mm varifocal lens, F1.4 | | 3 - 9 mm motorized lens, F1.2 |
| SNR | 48dB | | |
| WDR | Yes (HDR, 100 dB) | | |
| Day/Night ICR | Yes | | |
| IR LED | Yes (Max. 30M on limited shutter) | | |
| Min Illumination | 0.01 Lux @ F1.2 (B/W)<br>0.1 Lux @ F1.2 (Color) | | |
| Iris Control | DC drive | DC drive | P-Iris |
| Viewing Angle | Diagonal: 135°~35°<br>Horizontal: 93°~28.7°<br>Vertical: 53°~16.2° | | |
| Camera Angle Adjustment | Pan 0º ~340º<br>Tilt 30º ~90º | | |
| Pan/Tilt/Zoom Functionalities | N/A | | |
| Shutter Time | 1/2 ~ 1/1,000,000 | | |
| Video Compression | H.264/MPEG-4/MJPEG | | |
| Resolution | Up to 2048 x 1536 | | |
| Video FPS | 30 fps at QXGA (2048 x 1536)<br>60 fps at 1080P (1920 x 1080)<br>60 fps at SXGA (1280 x 1024)<br>60 fps at 720P (1280 x 720)<br>60 fps at D1 (720 x 480)<br>60 fps at VGA (640 x 480)<br>60 fps at QVGA (320 x 240) | | |
| Video Control | AGC (Auto Gain Control)<br>AWB (Auto White Balance)<br>AES (Auto Electronic Shutter)<br>HDR<br>Luminance Control<br>2D/3D De-noise<br>Edge Enhancement<br>Lens Correction<br>Image Adjustment | | |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously | | |
| Bit Rate | 64K ~ 10Mbps, VBR, CBR, controller frame rate and quality | | |
| Intelligent Video | Motion detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | | |
| Video Jack | Yes (BNC) | | N/A |

| | |
|---|---|
| Audio | 2 way audio |
| Audio Compression | 32KHz, ADPCM |
| Audio Input/Output | 3.5mm phone jack |
| Alarm In/Out | 1/1, terminal block |
| Video Buffer | 5 second pre-alarm, 30 second post-alarm |
| Event Action | Send snapshot or video clip by FTP or email, record to NAS, record to local storage, trigger DO |
| Supported Protocols | IPv4, ARP, TCP, UDP, ICMP, DHCP, NTP, DDNS, SMTP, FTP, HTTP, CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP |
| Ethernet | 10/100 Base-T / RJ45 |
| Local Storage | microSD/SDHC x 1<br>(Class 4/Class 6) |
| RS-485 | N/A |
| USB | N/A |
| SDK | SDK 2.0 |
| OS | Microsoft Windows XP/Vista/7 |
| Browser | Microsoft IE 6.0 or above |
| Software | VMS 2.4.8 |
| Temperature | Operation: -40°C~ 50°C (-40°F~122°F)<br>Storage: -30°C ~ 60°C (-22°F~140°F) |
| Humidity | 5 to 90% |
| Power | 12VDC 1.5A；PoE (IEEE 802.3af) with Class 3 |
| Power Consumption | Max. 7W (w/o Heater )<br>Max. 15.4W (w/ Heater & PoE 802.3af) |
| Dimension | ø144mm x 116mm (H)<br>ø5.67” x 4.57”(H) |
| Weight | Net: 1,260g (2.78lb.)<br>Gross: 1,930g (4.27lb.) |
| Certification | Safety: LVD<br>EMC: FCC, CE, GOST<br>IP66 |

# Specifications for CAM4571M/4571MP/4571VP

| Model Name | **CAM4571M** | **CAM4571MP** | **CAM4571VP** |
|---|---|---|---|
| Description | 5M Auto Focus D/N Outdoor Fixed Dome IP Camera | 5M Auto Focus D/N Outdoor Fixed Dome IP Camera | 5M P-Iris D/N Outdoor Fixed Dome IP Camera |
| Image Sensor | 1/2.5" 5 megapixel progressive scan CMOS | | |
| Lens | 4.5 - 9mm auto focus lens, F1.2 | | 3.3 – 10.5mm varifocal lens, F1.4 |
| SNR | 48dB | | |
| WDR | Yes | | |
| Day/Night ICR | Yes | | |
| IR LED | Yes (Max 30M, on 1/1 Exposure) | | |
| Min Illumination | 0 Lux (IR LEDs on)<br>0.1 Lux @ F1.2 (Color) | | |
| Iris Control | DC drive | P-Iris | |
| Viewing Angle | Diagonal: 98.5°- 43.8°<br>Horizontal: 80.5°- 38.1°<br>Vertical: 41.3° - 21.3° | | Diagonal: 126°- 40°<br>Horizontal: 98°- 32°<br>Vertical: 72° - 24° |
| Camera Angle Adjustment | Pan 0º ~340º<br>Tilt 30º ~90º | | |
| Pan/Tilt/Zoom Functionalities | N/A | | |
| Shutter Time | 1/1 ~ 1/1,000,000 s | | |
| Video Compression | H.264/MPEG-4/MJPEG | | |
| Resolution | Up to 2560 x 1920 | | |
| Video FPS | 14 fps at QSXGA (2560 x 1920)<br>21 fps at QXGA (2048 x 1536)<br>30 fps at 1080P (1920 x 1080)<br>30 fps at SXGA (1280 x 1024)<br>30 fps at 720P (1280 x 720)<br>30 fps at D1 (720 x 480)<br>30 fps at VGA (640 x 480)<br>30 fps at QVGA (320 x 240) | | |
| Video Control | AGC (Auto Gain Control), AWB (Auto White Balance), AES (Auto Electronic Shutter), Luminance Control, WDR, 2D/3D De-noise, ROI, Edge Enhancement, Lens Correction, image adjustment | | |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously | | |
| Bit Rate | 64K~20Mbps, VBR, CBR, controller frame rate and quality | | |
| Intelligent Video | Motion detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | | |
| Video Jack | N/A | | BNC |
| Audio | 2 Way Audio | | |

| | |
|---|---|
| Audio Compression | 16KHz, ADPCM/G.711 |
| Audio Input/Output | 3.5mm phone jack |
| Alarm In/Out | 1/1, terminal block |
| Video Buffer | 5 second pre-alarm, 30 second post-alarm |
| Event Action | Send snapshot or video clip by FTP or email,<br>record to NAS,<br>record to local storage,<br>trigger DO |
| Supported Protocols | IPv4, IPv6, ARP, TCP, UDP, ICMP, IGMP, DHCP, NTP, DDNS, SMTP, SNMP, FTP, HTTP, HTTPS, CIFS, PPPoE, UPnP, RTP, RTSP, RTCP, 3GPP, ONVIF |
| Ethernet | 10/100 Base-T / RJ45 |
| Local Storage | microSD/SDHC slot x 1 (Class 4/Class 6) |
| RS-485 | N/A |
| USB | N/A |
| SDK | SDK 2.0 |
| OS | Microsoft Windows XP/Vista/7 (32 bit) |
| Browser | Microsoft IE 6.0 or above |
| Software | VMS2.5 |
| Temperature | Operation: -40~50°C (-40~122°F)<br>Storage: -30~60°C (-22~140°F) |
| Humidity | 5 to 90% |
| Power | 12VDC 1.5A; PoE (IEEE 802.3af) with Class 3 |
| Power Consumption | Max. 7W (w/o Heater )<br>Max. 15.4W (w/ Heater & PoE 802.3af) |
| Dimension | ø144mm x 116mm (H)<br>ø5.67” x 4.57”(H) |
| Weight | Net: 1,260g (2.78lb.)<br>Gross: 1,930g (4.27lb.) |
| Certification | Safety: LVD<br>EMC: FCC, CE, GOST<br>IP66, IK10 |

# Specifications for CAM4371HEM/4371HEV

| Model Name | **CAM4371HEM** | **CAM4371HEV** |
|---|---|---|
| Description | 2 Megapixel Outdoor Fixed Dome Network Camera | 2 Megapixel Outdoor Fixed Dome Network Camera |
| Image Sensor | 1/2.8" megapixel SONY Exmor CMOS | |
| Lens | f3-10.5 mm auto focus lens, F1.4 | f3-10.5 mm varifocal lens, F1.4 |
| SNR | 50dB | |
| WDR | Yes (True WDR 120dB) | |
| Day/Night ICR | Yes | |
| IR LED | Yes (Max 30M) | |
| Min Illumination | 0.005 Lux @ F1.4 (B/W)<br>0.05 Lux @ F1.4 (Color) | |
| Iris Control | P-Iris | |
| Viewing Angle | Diagonal: 130° - 38°<br>Horizontal: 108° - 32°<br>Vertical: 58° - 18° | |
| Camera Angle Adjustment | Pan 0° ~340°<br>Tilt 30°~90° | |
| Pan/Tilt/Zoom Functionalities | N/A | |
| Shutter Time | 1/1 ~ 1/10,000 s | |
| Video Compression | H.264/MPEG-4/MJPEG | |
| Resolution | Up to 1920 x 1080 | |
| Video FPS | 60 fps at 1080P (1920 x 1080)<br>60 fps at SXGA (1280 x 1024)<br>60 fps at HD720 (1280 x 720)<br>60 fps at D1 (720 x 480)<br>60 fps at VGA (640 x 480)<br>60 fps at QVGA (320 x 240) | |
| Video Control | AGC (Auto Gain Control),<br>AWB (Auto White Balance),<br>AES (Auto Electronic Shutter),<br>BLC (Back Light Compensation),<br>WDR,<br>2D/3D De-noise,<br>ROI,<br>Edge Enhancement,<br>Image Adjustment | |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously | |
| Bit Rate | 32K~10Mbps, VBR, CBR, controller frame rate and quality | |
| Intelligent Video | Motion detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | |
| Video Jack | N/A | BNC |

| | |
|---|---|
| Audio | N/A |
| Audio Compression | 16KHz, ADPCM/G.711 |
| Audio Input/Output | 3.5mm phone jack (optional) |
| Alarm In/Out | 1/1, terminal block (optional) |
| Video Buffer | 5 second pre-alarm, 30 second post-alarm |
| Event Action | Send snapshot or video clip by FTP or email,<br>record to NAS,<br>record to local storage,<br>trigger DO |
| Supported Protocols | IPv4, ARP, TCP, UDP, ICMP, DHCP, NTP,<br>DDNS, SMTP, FTP, HTTP, CIFS, PPPoE,<br>UPnP, RTP, RTSP, RTCP, 3GPP, ONVIF |
| Ethernet | 10/100 Base-T / RJ45 |
| Local Storage | microSD/SDHC slot x 1 (Class 4/Class 6) |
| RS-485 | N/A |
| USB | N/A |
| SDK | SDK 2.0 |
| OS | Microsoft Windows XP/Vista/7 (32 bit) |
| Browser | Microsoft IE 6.0 or above |
| Software | VMS2.6 |
| Temperature | Operation: -40~50°C (-40~122°F)<br>Storage: -30~60°C (-22~140°F) |
| Humidity | 5 to 90% |
| Power | 12VDC 1.5A; PoE (IEEE 802.3af) with Class 3 |
| Power Consumption | Max. 10.2W (w/ PoE & w/o Heater )<br>Max. 17W (w/ DC Power & Heater) |
| Dimension | Ø105mm x 218.8mm x 194.41mm<br>(3.44” x 7.18” x 6.28”) |
| Weight | Net: 1,400g (3.09lb.)<br>Gross: 2,170g (4.8lb.) |
| Certification | Safety: LVD<br>EMC: FCC, CE, IP66, IK10 |

# Specifications for CAM4471HEM/4471HEV

| Model Name | **CAM4471HEM** | **CAM4471HEV** |
|---|---|---|
| Description | 3 Megapixel Outdoor Fixed Dome Network Camera | 3 Megapixel Outdoor Fixed Dome Network Camera |
| Image Sensor | 1/3 megapixel progressive scan CMOS | |
| Lens | f3-10.5 mm auto focus lens, F1.4 | f3-10.5 mm varifocal lens, F1.4 |
| SNR | 50dB | |
| WDR | Yes (True WDR 120dB) | |
| Day/Night ICR | Yes | |
| IR LED | Yes (Max 30M on limited shutter) | |
| Min Illumination | 0.01 Lux @ F1.2 (B/W)<br>0.1 Lux @ F1.2 (Color) | |
| Iris Control | P-Iris | |
| Viewing Angle | Diagonal: 130° - 38°<br>Horizontal: 108° - 32°<br>Vertical: 58° - 18° | |
| Camera Angle Adjustment | Pan 0° ~340°<br>Tilt 30°~90° | |
| Pan/Tilt/Zoom Functionalities | N/A | |
| Shutter Time | 1/1 ~ 1/10,000 s | |
| Video Compression | H.264/MPEG-4/MJPEG | |
| Resolution | Up to 2048 x 1536 | |
| Video FPS | 30 fps at QXGA (2048 x 1536)<br>60 fps at 1080P (1920 x 1080)<br>60 fps at SXGA (1280 x 1024)<br>60 fps at 720P (1280 x 720)<br>60 fps at D1 (720 x 480)<br>60 fps at VGA (640 x 480)<br>60 fps at QVGA (320 x 240) | |
| Video Control | AGC (Auto Gain Control),<br>AWB (Auto White Balance),<br>AES (Auto Electronic Shutter),<br>BLC (Back Light Compensation),<br>HDR,<br>2D/3D De-noise,<br>ROI,<br>Edge Enhancement,<br>Image Adjustment | |
| Video Stream | Dual stream at H.264, MPEG-4, and MJPEG simultaneously | |
| Bit Rate | 32K~20Mbps, VBR, CBR, controller frame rate and quality | |
| Intelligent Video | Motion detection,<br>Tampering Detection<br>(blocked, redirected, defocused, or spray-painted) | |

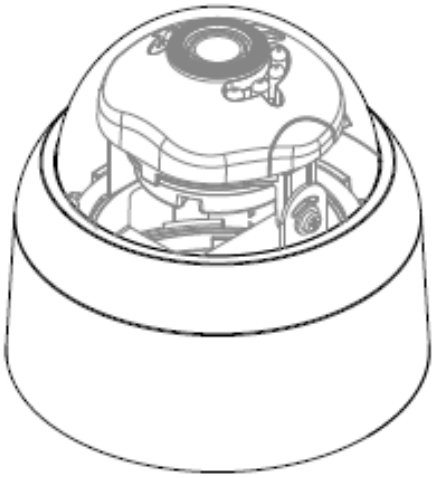
| | | |
|---|---|---|
| Video Jack | N/A | BNC |
| Audio<br>Built-in MIC | N/A | |
| Audio<br>Compression | 16KHz, ADPCM/G.711 | |
| Audio<br>Input/Output | 3.5mm phone jack (optional) | |
| Alarm In/Out | 1/1, terminal block (optional) | |
| Video Buffer | 5 second pre-alarm, 30 second post-alarm | |
| Event Action | Send snapshot or video clip by FTP or email,<br>record to NAS,<br>record to local storage,<br>trigger DO | |
| Supported<br>Protocols | IPv4, IPv6, ARP, TCP, UDP, ICMP, IGMP, DHCP, NTP,<br>DDNS, SMTP, SNMP, FTP, HTTP, HTTPS, CIFS, PPPoE,<br>UPnP, RTP, RTSP, RTCP, 3GPP, ONVIF | |
| Ethernet | 10/100 Base-T / RJ45 | |
| Local Storage | microSD/SDHC slot x 1 (Class 4/Class 6) | |
| RS-485 | N/A | |
| USB | N/A | |
| SDK | SDK 2.0 | |
| OS | Microsoft Windows 7/8 | |
| Browser | Microsoft IE 6.0 or above | |
| Software | VMS2.5 | |
| Temperature | Operation: -40~50°C (-40~122°F)<br>Storage: -30~60°C (-22~140°F) | |
| Humidity | 5 to 90% | |
| Power | 12VDC 1.5A; PoE (IEEE 802.3af) with Class 3 | |
| Power<br>Consumption | Max. 9W (w/o Heater )<br>Max. 27W (w/ Heater & DC Power) | |
| Dimension | Ø144mm x 116mm<br>(5.67” x 4.57”) | |
| Weight | Net: 1,260g (2.78lb.)<br>Gross: 1,930g (4.27lb.) | |
| Certification | Safety: LVD<br>EMC: FCC, CE, IP66, IK10 | |

# Chapter 2. Hardware Overview

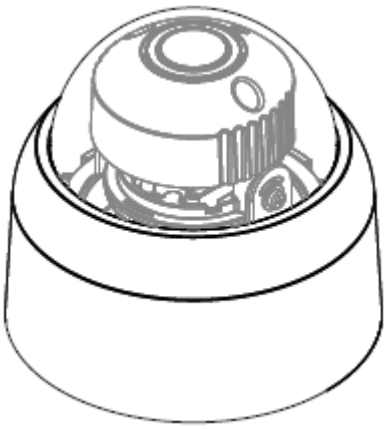
## 2.1. Overview

### Side View

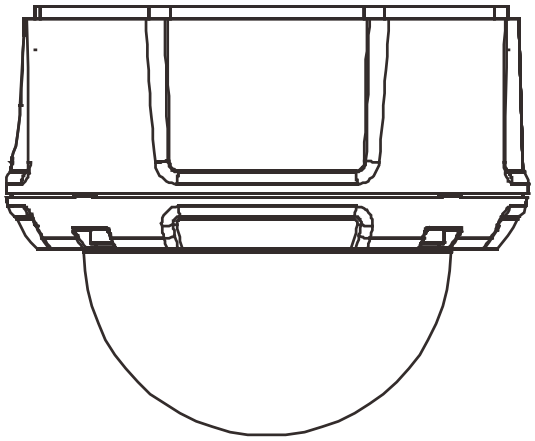
Indoor: Fixed Lens (CAM4211/4311S2/4411S2/-S3/-S4/-S6)



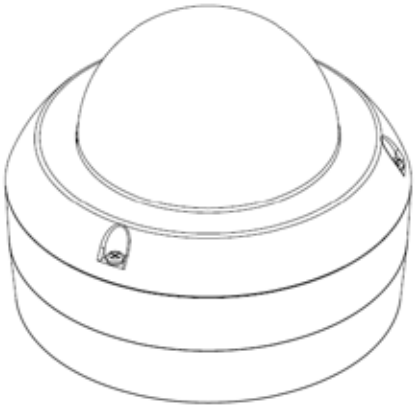
Indoor: Varifocal Lens (CAM4221/4421LV/4321SV/4321LV/4421LV/4521LV)



Outdoor (CAM4371HEM/ 4371HEV/ 4471M / 4471MP / 4471V / 4471HEM / 4471HEV / 4571M / 4571MP / 4571VP)

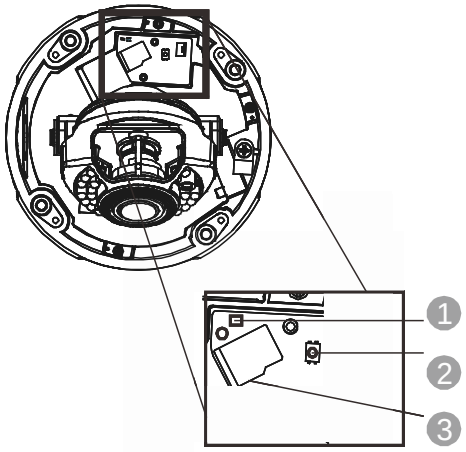


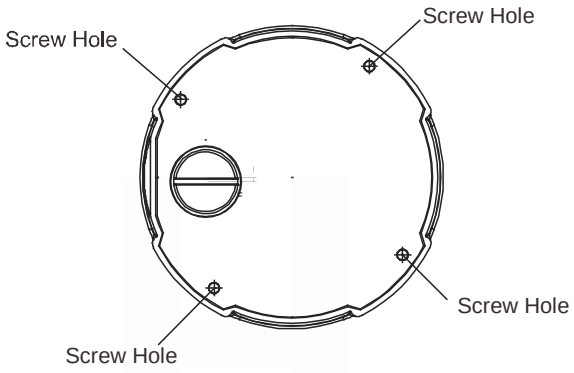
**Outdoor (CAM4351R2/4361RV/4361LV/4461LV/4561LV)**



# Top View and Bottom View

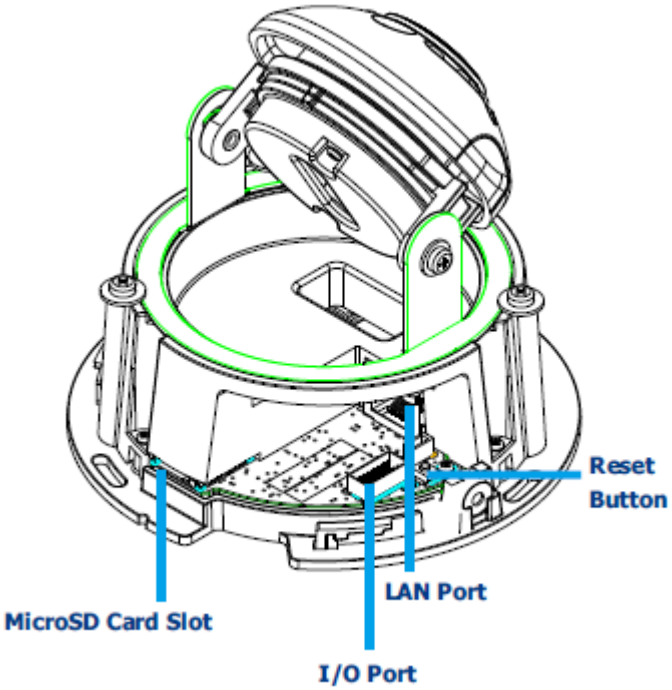
## Outdoor (CAM4371HEM/ 4371HEV/ 4471M / 4471MP / 4471V / 4471HEM / 4471HEV / 4571M / 4571MP / 4571VP)



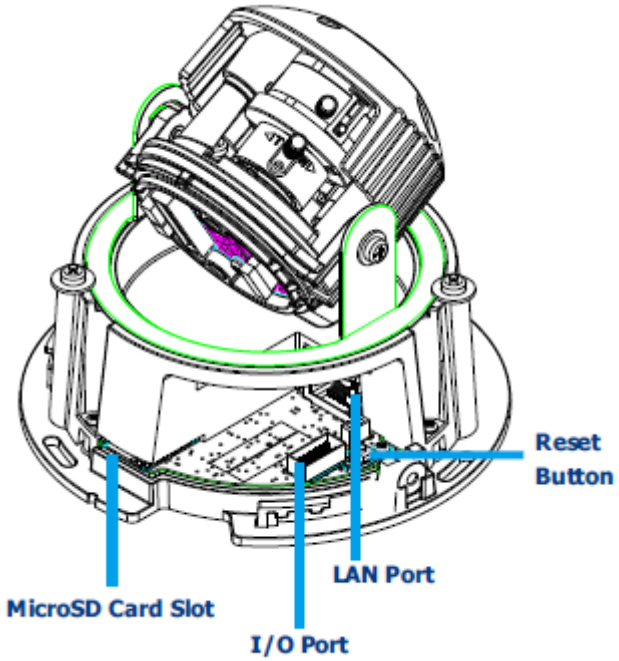




| 1. Status LED Indicator | 2. Reset Button | 3. MicroSD/SDHC Card Slot |
|---|---|---|

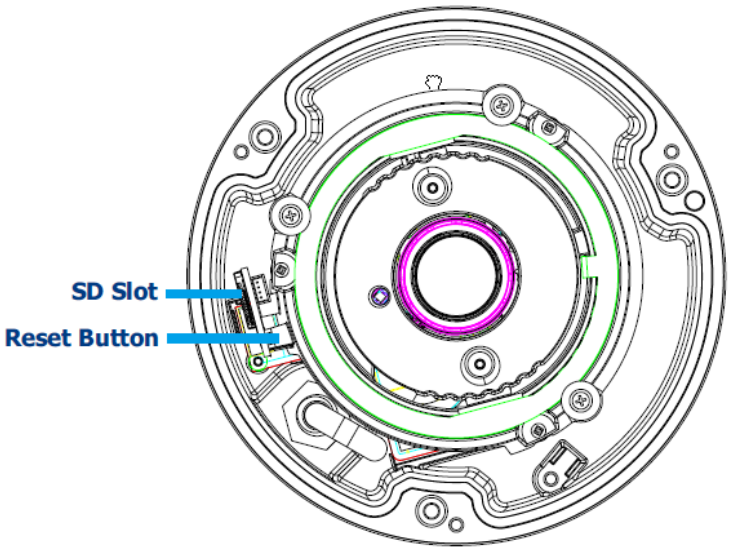
## Indoor (CAM4211/4311S2/4411S2/-S3/-S4/-S6)



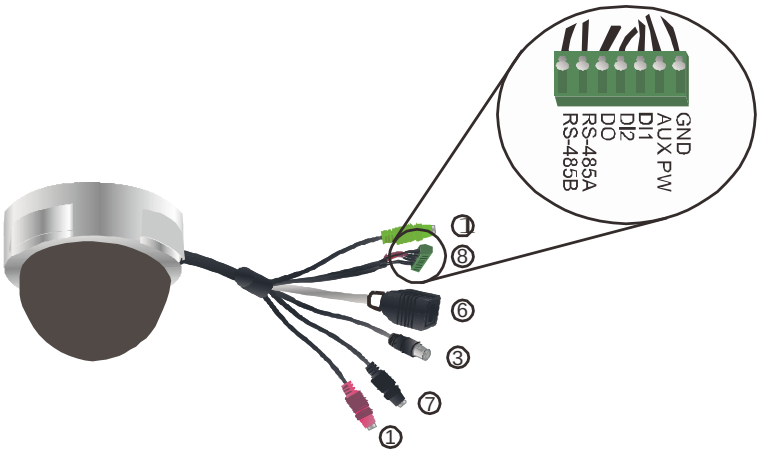
## Indoor (CAM4221/4321SV/4321LV/4421LV/4521LV)



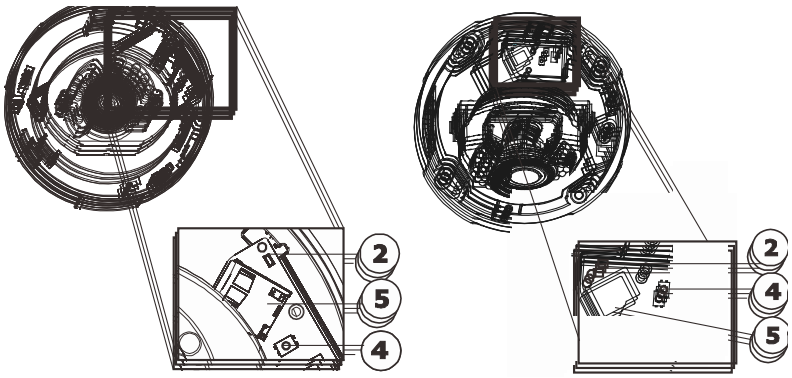

## Outdoor (CAM4351R2/4361RV/4361LV/4461LV/4561LV)



# 2.2. Functions




**Indoor** **Outdoor**




Please refer to the following table for cable options:

| | CAM4371HEM<br>CAM4471M<br>CAM4471MP<br>CAM4471HEM<br>CAM4571M<br>CAM4571MP | CAM4371HEV<br>CAM4471HEV<br>CAM4471V<br>CAM4471VT<br>4571VP | CAM4211<br>CAM4221<br>CAM4311S2<br>CAM4321SV<br>CAM4321LV<br>CAM4421LV<br>CAM4521LV<br>CAM4411S2<br>CAM4411S3<br>CAM4411S4<br>CAM4411S6 | CAM4351S2<br>CAM4361RV<br>CAM4361LV<br>CAM4461LV<br>CAM4561LV |
|---|---|---|---|---|
| **Audio In/Out Connector** | Optional | Optional | Optional | X |
| **Network Connector** | a | a | a | a |
| **Power Connector** | a | a | X | X |
| **I/O Terminal Connector** | Optional | Optional | Optional | X |
| **Video Out Connector** | X | a | X | X |

**1.** Audio In/Out Connector

Audio In/Out are both for 3.5mm jacks. Audio-in provides for an external mono microphone. Audio out can be connected to a public address system or an active speaker with a built-in amplifier. A pair of headphones can also be attached.

**Note:** Built-in microphone can also be used for certain models. Please refer to *Audio Setting* section for details.

**2.** Status LED Indicator

The LED will light up after the camera has successfully completed the boot process. The Status LED indicator in the rear of the camera can be set to light whenever the unit is accessed, or be shut off.

| | | |
|---|---|---|
| Status LED (rear) | Green | Shows steady green for normal operation, flashing when the camera is accessed.<br>Note: The Status LED can be configured to be unlit. |
| | Amber | Steady during startup, reset to factory default or when restoring settings. |
| | | Flashes every 0.2 sec during firmware upgrade.<br>(On:0.2 sec, Off: 0.2 sec)<br>Note: Startup or reboot may have failed if the status LED shows steady amber for over 1 minute. |
| | Unlit | No network connection. |

**3.** Video Out Connector

Video Out Connector is used for connecting monitors with BNC ports.

**4.** Reset Button

Pressing the reset button will restore the camera to its factory default settings, as described in *Resetting to the Factory Default Settings.*

**5.** microSD/SDHC Card Slot

The microSD/SDHC card slot can be used for local recording and firmware upgrade.

**Note:** Apacer 4GB Class 6/Transcend 8GB Class 6/Kingston 16GB Class 2, SanDisk 16GB Class 2/SanDisk 32GB Class 4 MicroSDHC card are recommended, since they have passed the SD Card QVL (Qualified Vender List) test.

**6.** Network Connector

The camera connects to the network via a standard RJ-45 network connector. The camera detects the speed of the local network (10/100BaseT). The camera also supports PoE (Power-over-Ethernet), and can be powered directly through the network cable.

**7.** Power Connector

The power connector is provided for solutions without PoE.

**8.** I/O terminal Connector

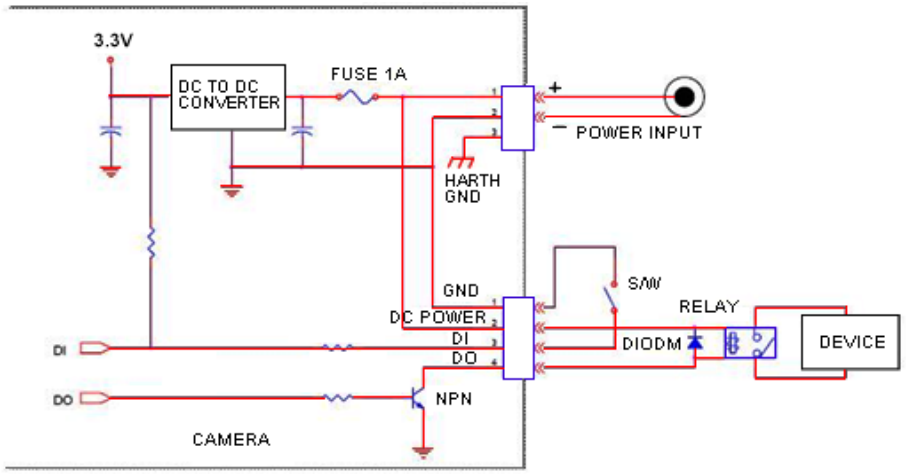
The I/O terminal connector provides an RS-485 interface, one transistor output, two digital inputs, and connection points for auxiliary DC power and GND.

The I/O terminal connector provides the interface to:

- Ø 1 transistor output - For connecting external devices such as relays and LEDs. Devices can be activated by Output buttons on the Live View page or by an Event. The output will show as active (in Event Configuration > Port Status) if the alarm device is activated.
- Ø 2 digital inputs - An alarm input for connecting devices that can toggle between an open and closed circuit, for use with devices such as PIRs, door/window contacts, glass break detectors, etc. When a signal is received the state changes and the input becomes active (shown under Event Configuration > Port Status).
- Ø Auxiliary power and GND

| GND | Pin 1 | Ground | Description |
|---|---|---|---|
| 12V Auxiliary DC Power (not to power this camera) | Pin 2 | Electrically connected in parallel with the connector for the power supply, this pin provides an auxiliary connector for main power to the unit. This pin can also be used to power auxiliary equipment with a maximum current of 100mA. | Voltage: 12V DC, Max: 1.2W |

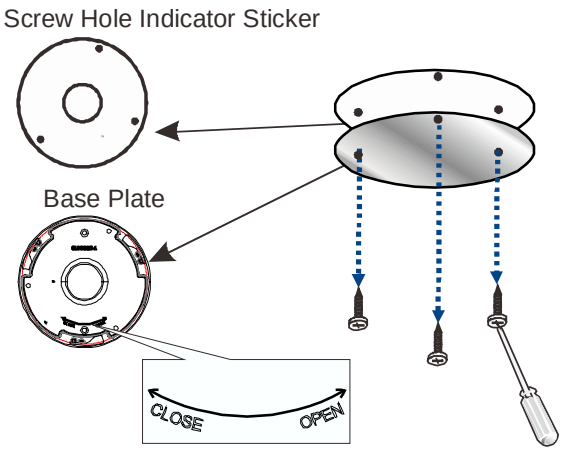
| | | | |
|---|---|---|---|
| DI1(Digital Input) | Pin 3 | Connect to GND to activate, or leave floating (or unconnected) to deactivate. | Must not be exposed to voltages greater than 30V DC |
| DI2 (Digital Input) | Pin 4 | Connect to GND to activate, or leave floating (or unconnected) to deactivate. | Must not be exposed to voltages greater than 30V DC |
| DO(Digital Output) | Pin 5 | Uses an open-collector NPN transistor with the emitter connected to the GND pin. If used with an external relay, a diode must be connected in parallel with the load, for protection against voltage transients. | Max load = <100mA<br>Max voltage = 24V DC<br>(to the transistor) |
| RS-485A | Pin 6 | Data transmission connector for control of external devices. (ex. Pan/Tilt scanners) | Tx |
| RS-485B | Pin 7 | Data transmission connector for control of external devices. (ex. Pan/Tilt scanners) | Tx |



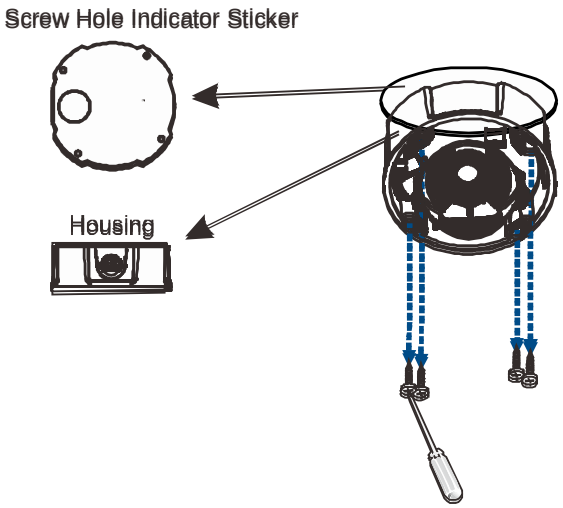
# 2.3. Installation

## Installing the Dome Camera

**Indoor**




**Outdoor**



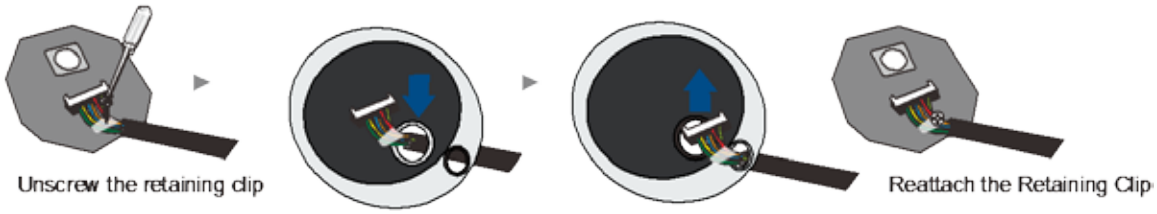

1. Use screw hole indicator sticker to mark the desired camera position on the ceiling.
2. Make one cable entry hole and 3 or 4 screw holes on the ceiling with the electrical drill.
3. **(Indoor)** Remove the base plate from the bottom of the camera assembly.

   **(Outdoor)** Use the provided L-type hex wrench to unscrew the cover of the camera.
4. **(Indoor)** Align the base plate with the sticker and turn it clockwise to secure it on top of the sticker.

**(Outdoor)** Align the housing with the sticker and fasten the screws to secure the housing on top of the sticker.

**5.** Thread the multiple connector interface cable through the cable entry hole on the base plate or housing.

**(Outdoor - Optional)** The default cable entry hole is located on bottom of the camera. If the installation requires use of the lateral-side cable hole, remove the cap from the lateral-side cable hole. Disconnect the cable from the board entirely, and reinsert it through the lateral cable hole. Reconnect the cable to the camera.



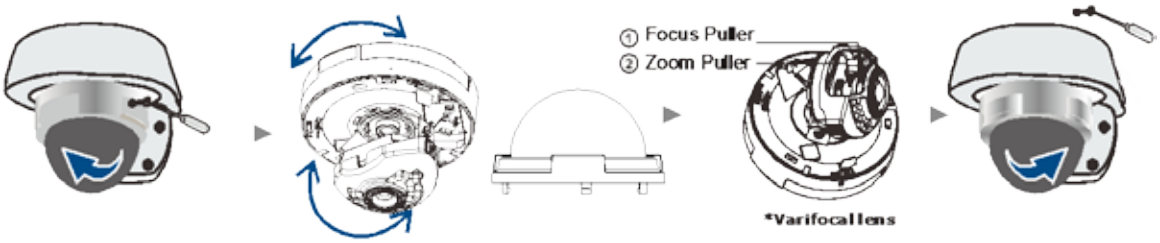

**6.** Connect the camera to network with the network connector.

**7.** Connect the power connector to a power outlet.

**8.** The status LED indicator will blink amber to indicate the boot-up sequence has started. Wait until the LED is in a steady green state, indicating the camera boot-up is complete.

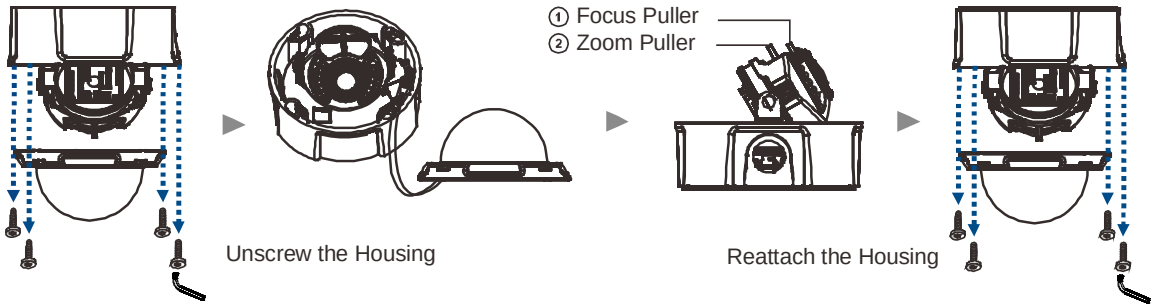
**9. (Indoor)** Reattach the camera assembly to the base plate.

**10. (Indoor)** Remove the camera cover by twisting it counterclockwise. Adjust the desired view angle as needed. On models equipped with varifocal lenses, you may also adjust the zoom and focus by unscrewing the corresponding puller, adjusting and then re-tightening the puller. After adjustments are complete, reinstall the camera cover and secure it with the included retaining screw.




**(Outdoor)** Unscrew the zoom puller on the lens and adjust the desired view angle as needed. Re-tighten the zoom puller. Unscrew the focus puller on the lens and adjust the focus as required. Re-tighten the focus puller and

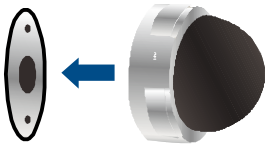
reinstall the camera cover.




**Note:** (1) Cover removal is not required on models with motorized lenses (CAM4471M/ CAM4471MP/ CAM4571M / CAM4571MP / CAM4371HEM / CAM4471HEM). (2) Please check the live view after the camera is logged in.

## Installing the Dome Camera with the Mounting Bracket (Optional)

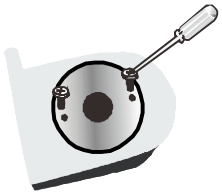
1. **(Indoor)** Remove the base plate from the bottom of the camera.



Base Plate

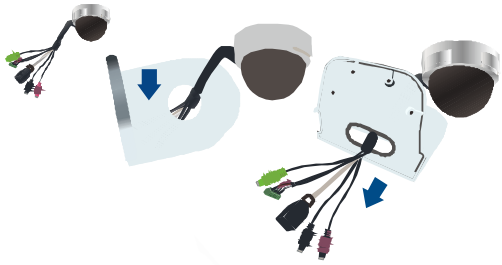
**(Outdoor)** Use the provided L-type hex wrench to unscrew the cover of the camera.

2. **(Indoor)** Align the base plate with the mounting bracket and fasten screws to secure the plate on the bracket.

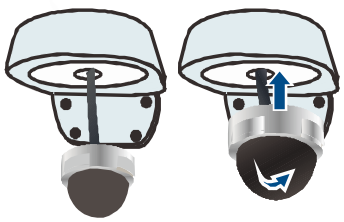


3. Fasten the mounting bracket to the wall at the desired camera location. If required, use the provided thread-spaces on the side of the bracket for wires.

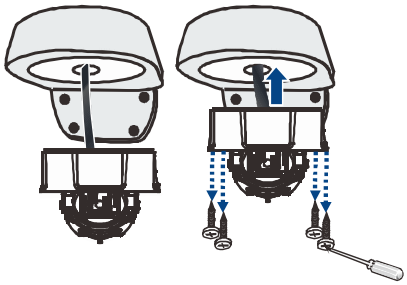
4. **(Indoor)** Thread the multiple connector interface cable and any other input or output cables for sensors or alarms through the base plate hole and the back of the mounting bracket.



5. **(Indoor)** Reattach the camera assembly to the base plate.

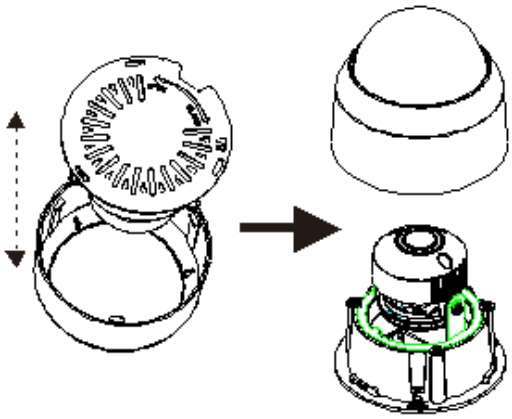


**(Outdoor)** Align the housing with the mounting bracket and fasten screws to secure the housing on the bracket.

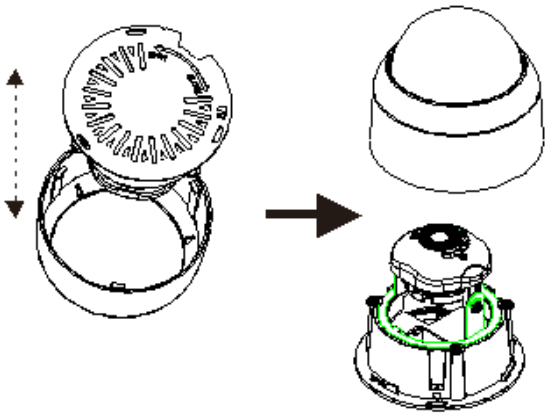


# 2.4. Hardware Installation

## Indoor: CAM4221/4321SV/4321LV/4421LV/4521LV

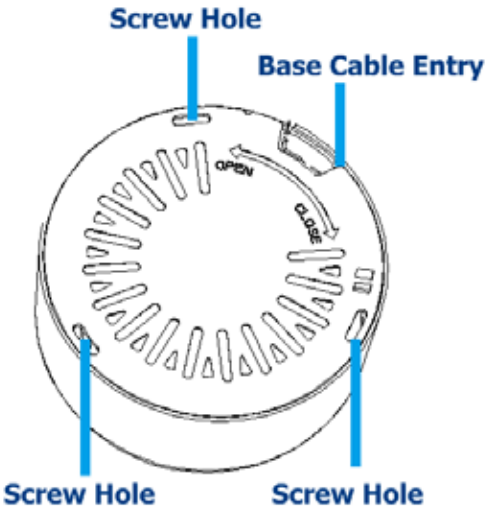


## Indoor: CAM4211/4311S2/4411S2/-S3/-S4/-S6



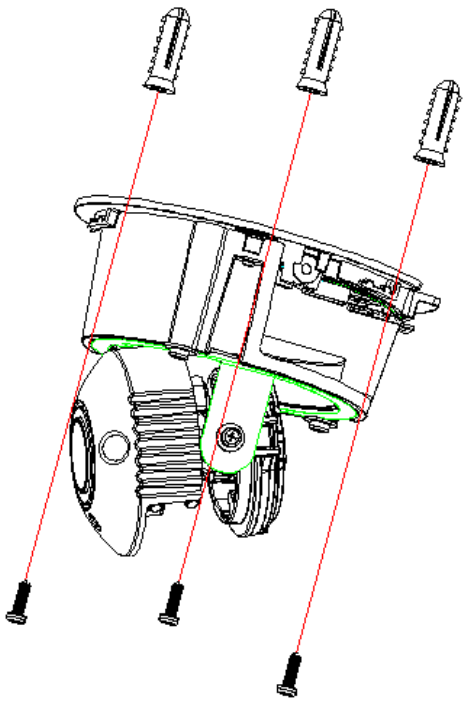
1. Open and take out the dome cover from the base.Loosen the lock ring to adjust the desired angle of the camera.
2. Use the dome base to mark the desired camera position and make 3 holes for the anchors and then put the anchors into the holes. Use the screws to fix the camera unit on the surface of a ceiling or a wall.

## Indoor: Dome Base

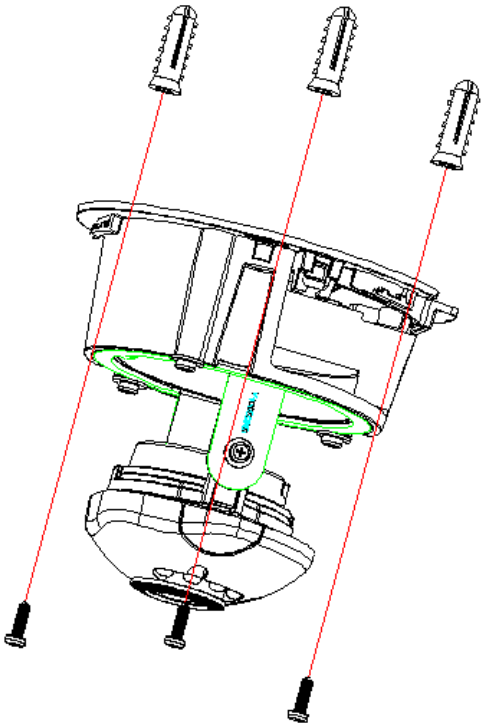



The screw holes are slightly bigger than the screws for easy adjustments.

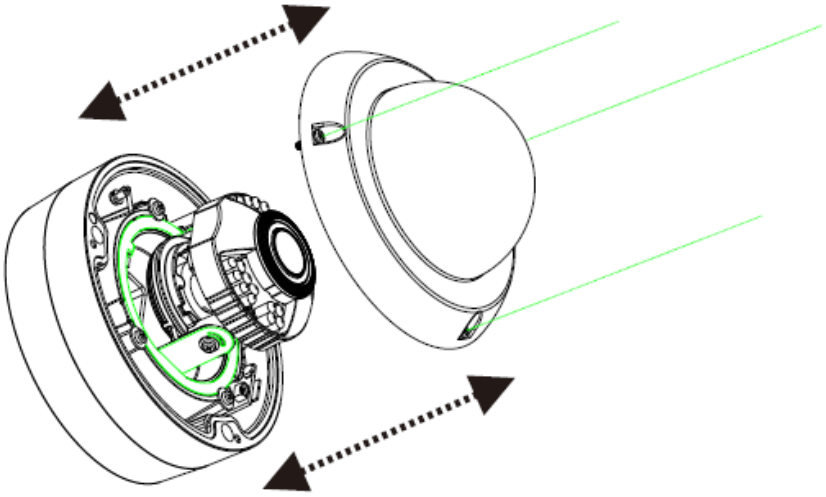
## Indoor: CAM4221/4321SV/4321LV/4421LV/4521LV



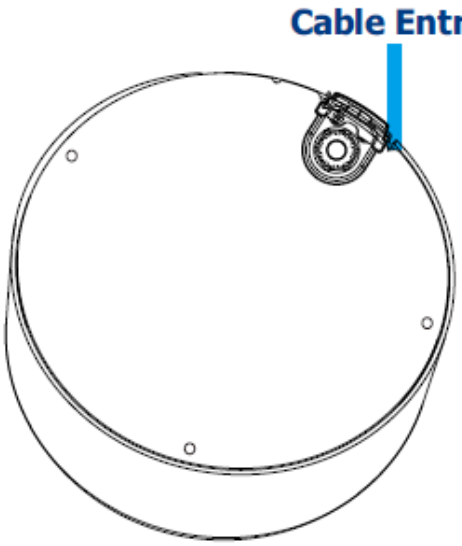
## Indoor: CAM4211/4311S2/4411S2/-S3/-S4/-S6



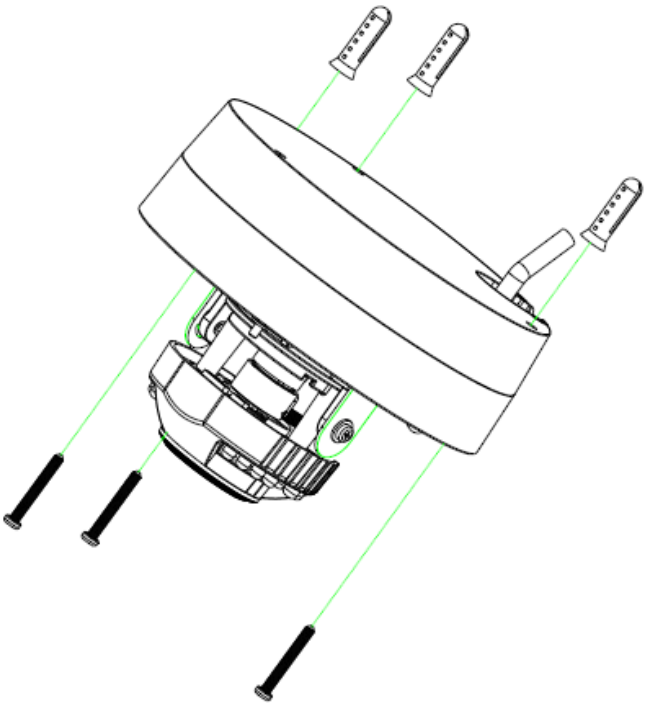
## Outdoor: CAM4351R2/4361RV/4361LV/4461LV/4561LV



## Outdoor: CAM4351R2/4361RV/4361LV/4461LV/4561LV




## Outdoor: CAM4351R2/4361RV/4361LV/4461LV/4561LV



**NOTE:** Cables can go through either the base or side cable entry. When choosing the base, remember to drill a hole for the cable entry.

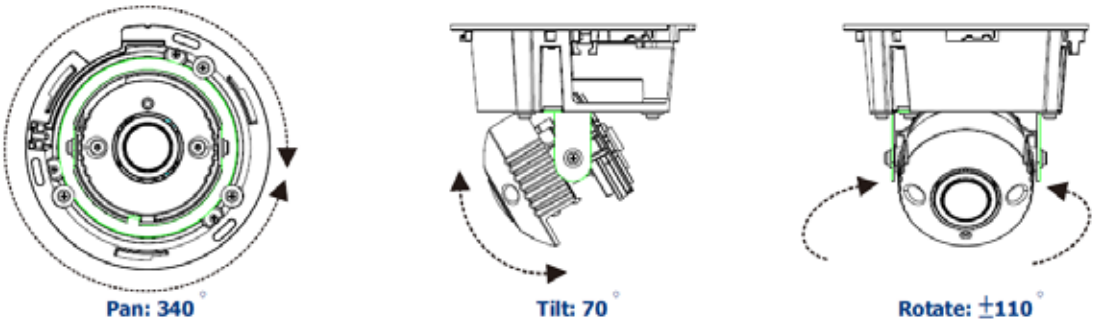
# 2.5. Adjustment

## 2.5.1. 3-axis Gimbal Mechanism:

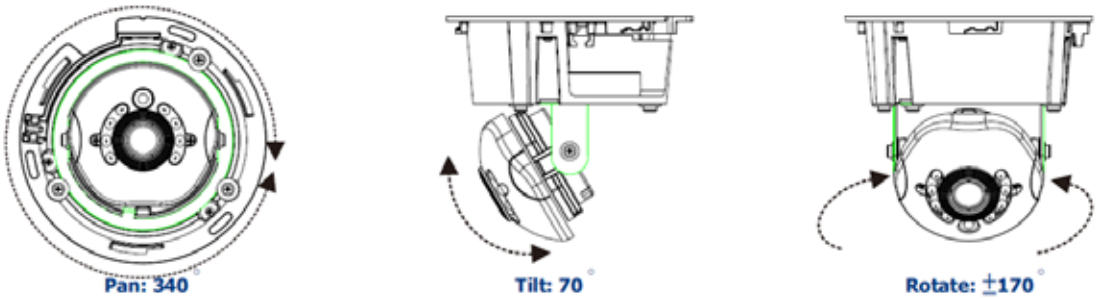
The cameras can be panned, tilted, and rotated to its required position.

**CAM4221/4321SV/4321LV/4361RV/4361LV/4421LV/**

**4521LV/4461LV/4561LV**

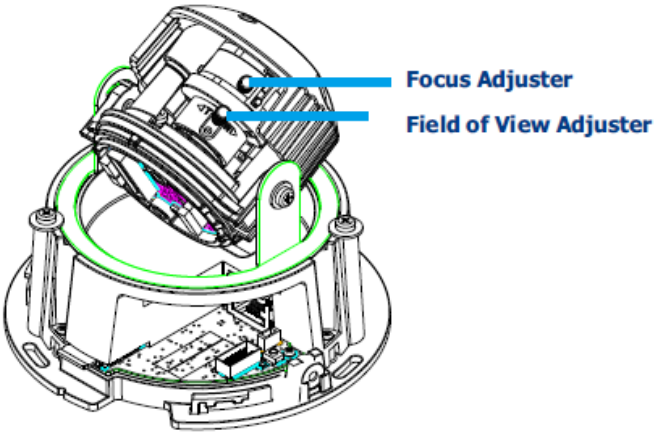



**CAM4211/4311S2/4411S2/4411S3/4411S4/4411S6/4351R2**




## 2.5.2. Focus Adjuster and Field of View Adjuster

**(CAM4221/4321SV/4321LV/4361RV/4361LV/4421LV/4521LV/4461LV/4561LV):**

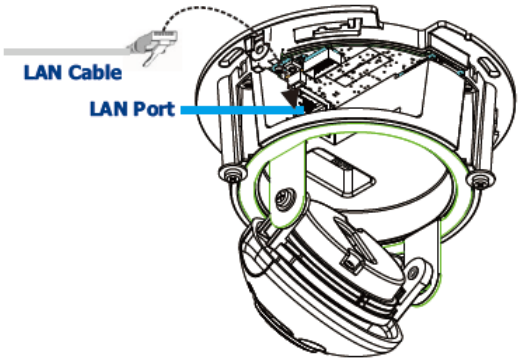


# 2.6. Wiring

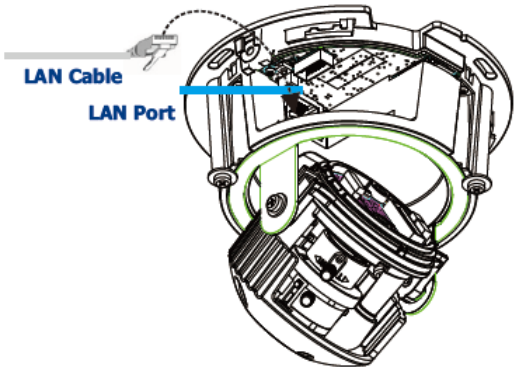
## 2.6.1. Connecting the LAN cable via a PoE switch:

Once it's connected and electrified, follow the instructions from *2.5. Adjustment* to have the desired viewing angle and have the camera fine-tuned.

**CAM4221/4321SV/4321LV/4421LV/4521LV**



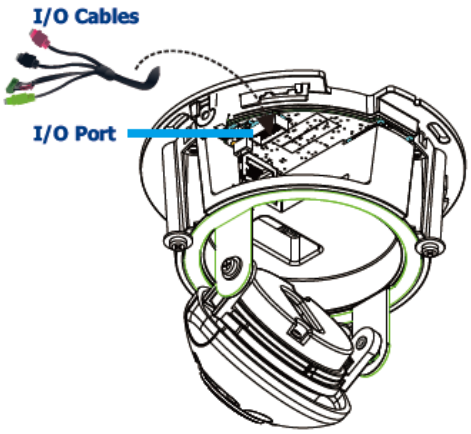

**CAM4211/4311S2/4411S2/ 4411S3/4411S4/4411S6**



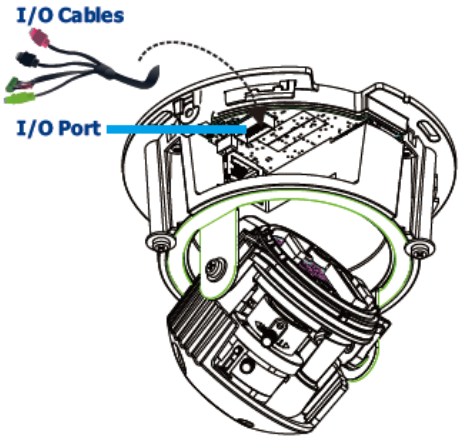

## 2.6.2. Connecting the I/O cables:

Once it's connected and electrified, follow the instructions from *2.5. Adjustment* to have the desired viewing angle and have the camera fine-tuned.

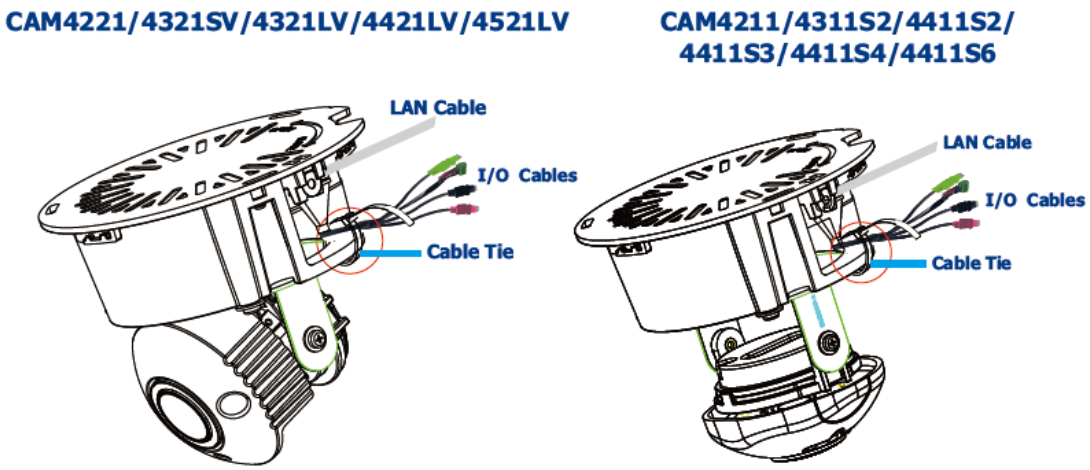
**CAM4221/4321SV/4321LV/4421LV/4521LV**




**CAM4211/4311S2/4411S2/ 4411S3/4411S4/4411S6**



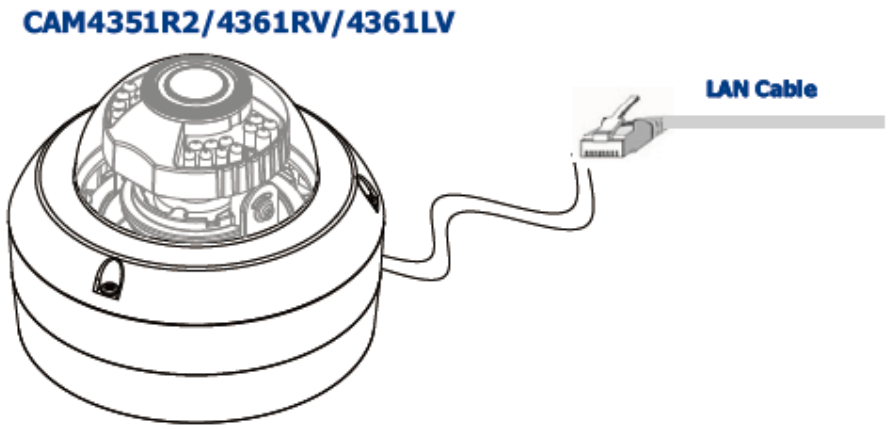
Use the cable tie supplied to fasten the I/O cables onto the camera unit otherwise it may be come off or dragged out. Cut the redundant cable tie off.




**Note**: Before using the cable tie to fasten the I/O cables, be sure to make camera adjustments first. Otherwise the cable tie may stand in the way for any adjustment.

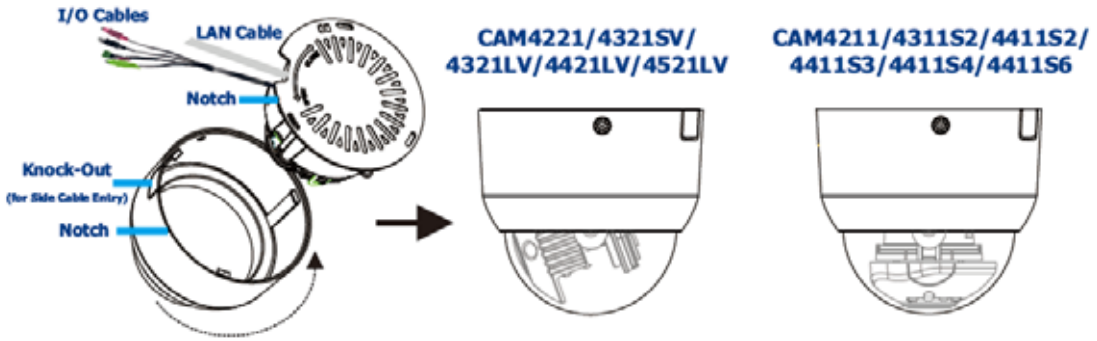
## 2.6.3. Connecting the LAN cable:

Once it's connected and electrified, follow the instructions from #3 Adjustment to have the desired viewing angle and have the camera fine-tuned.



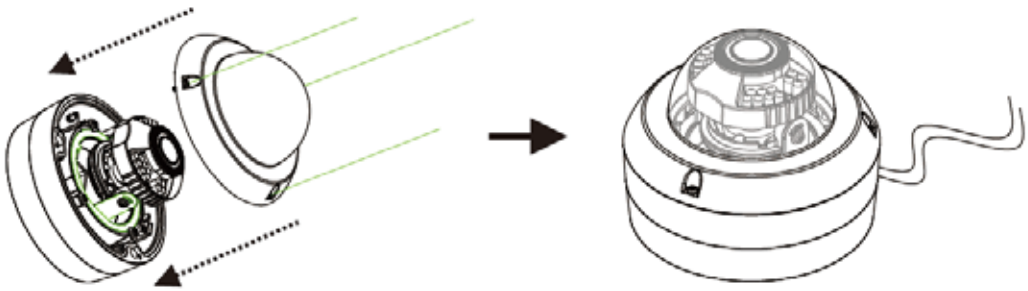
# 2.7. Reattachment

Once the wiring and the camera adjustments are done, the dome cover should be reattached back. Put the dome cover back by pointing the notches on the camera unit and the dome cover together and then turning the dome cover anti-clockwise. The dome cover is fastened when you hear a click sound.

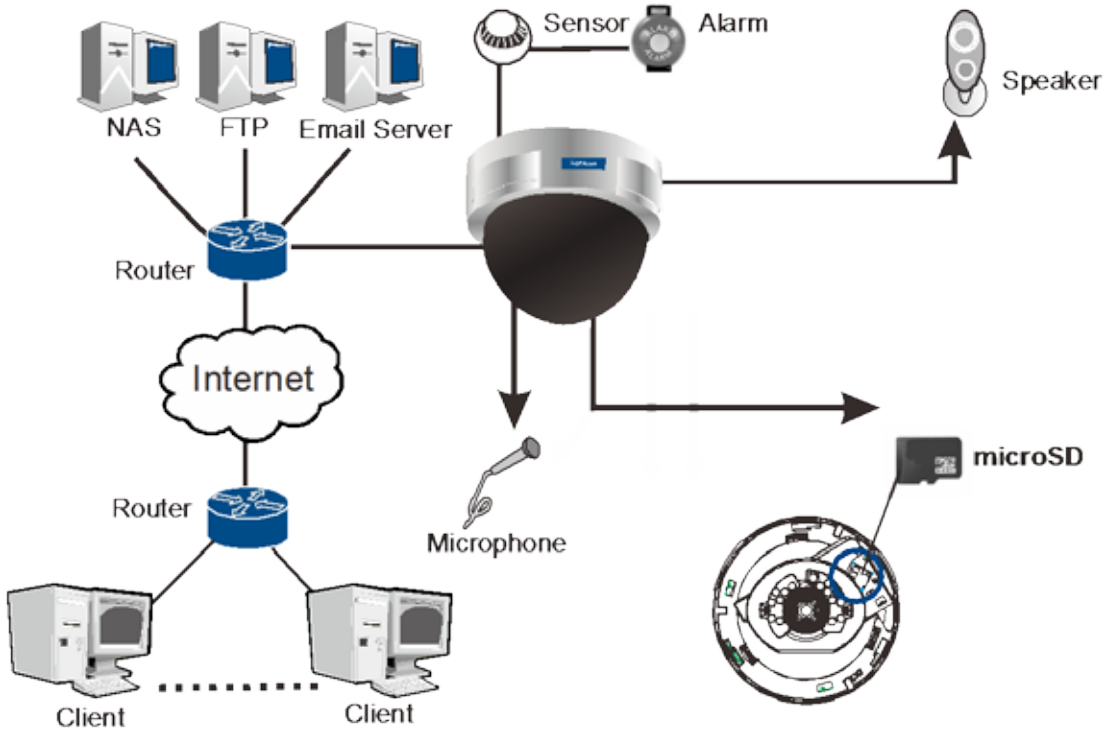



**Note**: When choosing the side cable entry, make sure the knock-out is removed before putting the dome cover back.

**CAM4351R2/4361RV/4361LV**



## 2.8. Camera Deployment




## 2.9. Before You Start

Please prepare a PC with Windows (XP or above) and web browsers (Internet Explorer 6.0 or above) installed.

# Chapter 3. Connecting to the Network Camera

This section demonstrates how to connect to the network camera through two methods:

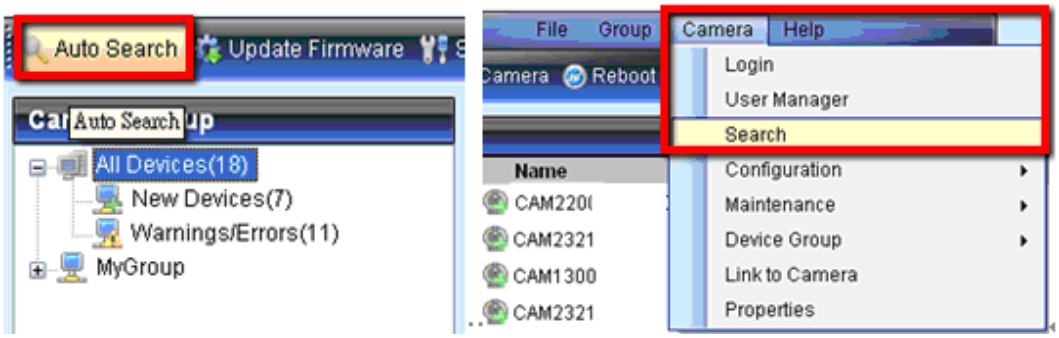
- Web Browser – A simple web-based interface. Internet Explorer is the recommended web browser for use with network cameras, and our examples will be from this browser. Usage on other browsers will be similar.
- RTSP Player – These include common streaming media players, such as *RealPlayer* or *Quicktime Player*. These players can provide live view of the camera using the Real-Time Streaming Protocol (RTSP).

# 3.1. Connecting with a Web Browser

## Obtaining IP address through the IP Utility

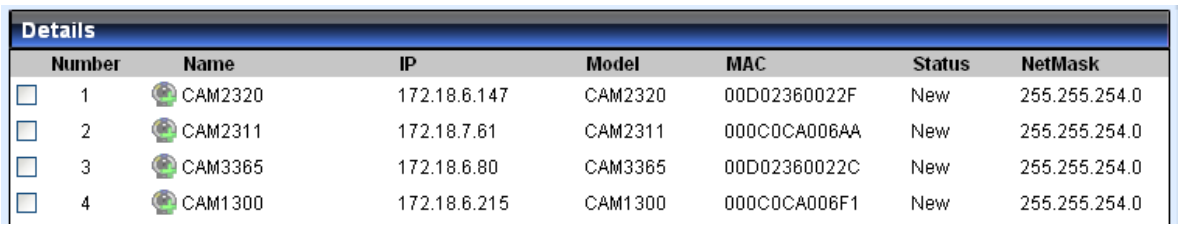
The IP address can be obtained using the IP Utility in your product CD:

1. Double click Start SearchToolInstall.exe to begin the utility installation.
2. After the installation is complete, click the **Auto Search** button or click **Camera > Search** in the menus.




The camera search will begin, and a status bar will display the search progress.

3. The details of the camera will display after the search is finished.



Details

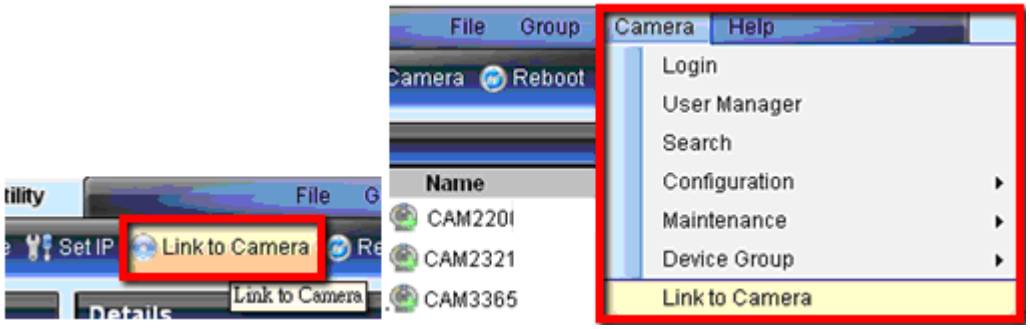
| Number | Name | IP | Model | MAC | Status | NetMask |
|---|---|---|---|---|---|---|
| 1 | CAM2320 | 172.18.6.147 | CAM2320 | 00D02360022F | New | 255.255.254.0 |
| 2 | CAM2311 | 172.18.7.61 | CAM2311 | 000C0CA006AA | New | 255.255.254.0 |
| 3 | CAM3365 | 172.18.6.80 | CAM3365 | 00D02360022C | New | 255.255.254.0 |
| 4 | CAM1300 | 172.18.6.215 | CAM1300 | 000C0CA006F1 | New | 255.255.254.0 |

**Note**: (1) The search may take up to 2 minutes, depending on your network configuration. (2) If your network does not have DHCP service, the default IP address is 192.168.88.10.

## Connecting to the Network Camera

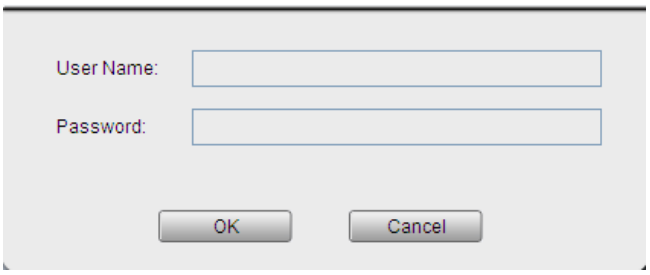
Launch the web browser (Microsoft ® Internet Explorer 6.0 or higher is recommended). Enter the IP address of the network camera in the address bar of your browser and press enter.

You can also Click the **Link to Camera** button or click **Camera> Link to Camera** in the IP Utility menu bar. The camera's live view webpage will open in a browser window.




## Logging into the System

The following information will prompt for logging in:




- **Username** – The username for the domain. **Default is always *admin*.**
- **Password** – The password for the domain. **Default is always *admin*.**

Click **OK.**

## Installing Active X Components in Internet Explorer

You may be prompted to install ActiveX® components when accessing the network camera's Live View page; click **Yes** when prompted. You will be able to access the camera after installation is completed. Under Windows, this action may require administrator privileges.

If the dialog box suggests that you are not allowed to install ActiveX components, try resolving the problem using the following steps:

1. In Internet Explorer, open Tools> Internet Options> Security. Click the Custom level button.
2. Search for *Download signed ActiveX controls*. Under this heading select **Prompt** and then click **OK**.

3. Continue installing the Active X components.
4. After installing ActiveX, go to **Tools> Internet Options> Trusted Websites > Sites** and add the IP Address of the camera.

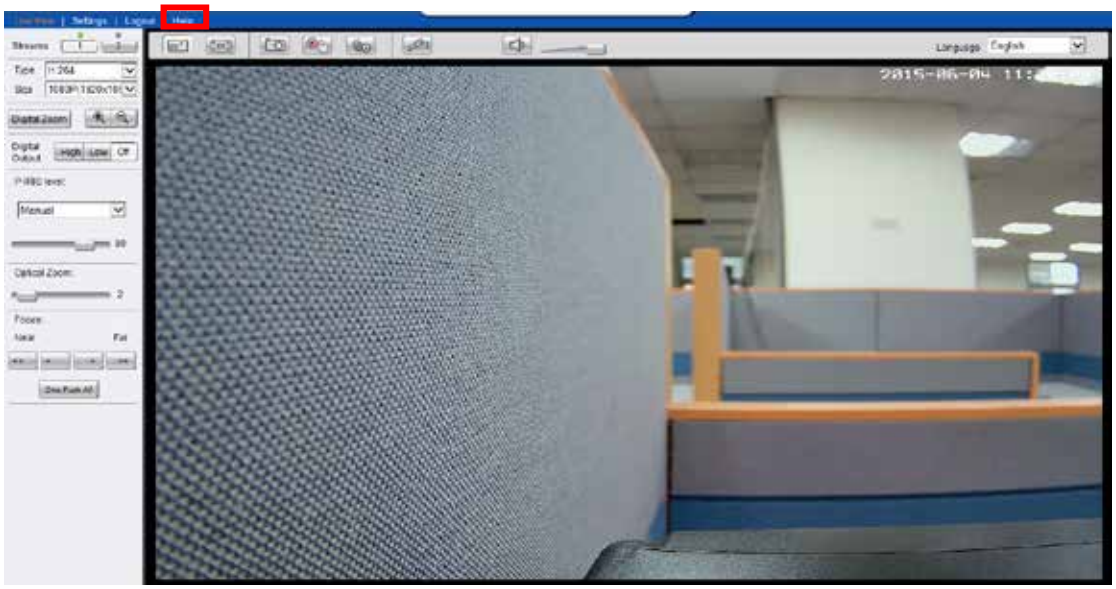
## Logging Out of the System

Logging off of the camera can be performed by closing the browser window.

Users can also choose to click the **Logout** link located at the top of the screen.

## Using the Help Interface

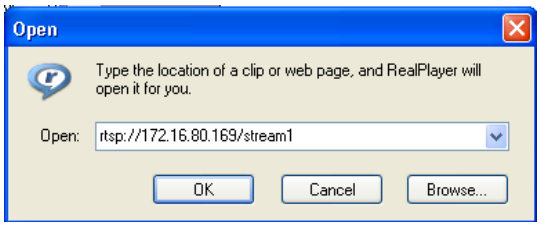
While using the web interface, you may click on the **Help** link located under the title bar. This will bring up a pop-up containing the IP Camera Help manual.



# 3.2. Connecting with an RTSP Player

Connections through RTSP Media Players such as *Real Player* and *QuickTime Player* are supported. We will use Real Player as an example in this section.

1. Launch Real Player.
2. Select **File > Open URL**, to open a URL dialog box.
3. Enter the camera URL in the address bar.




**Note:** The format for RTSP is: rtsp://<IP Address>/<Access>, where <Access> can be found at **Settings > Network> Port Settings > RTSP Setting**. By default the <Access> value should be stream1 and stream2.

4. Click **OK,** the stream should begin playing.

# Chapter 4. Configuration through the Web Interface

Camera configurations can be done through web interface and IP Utility.

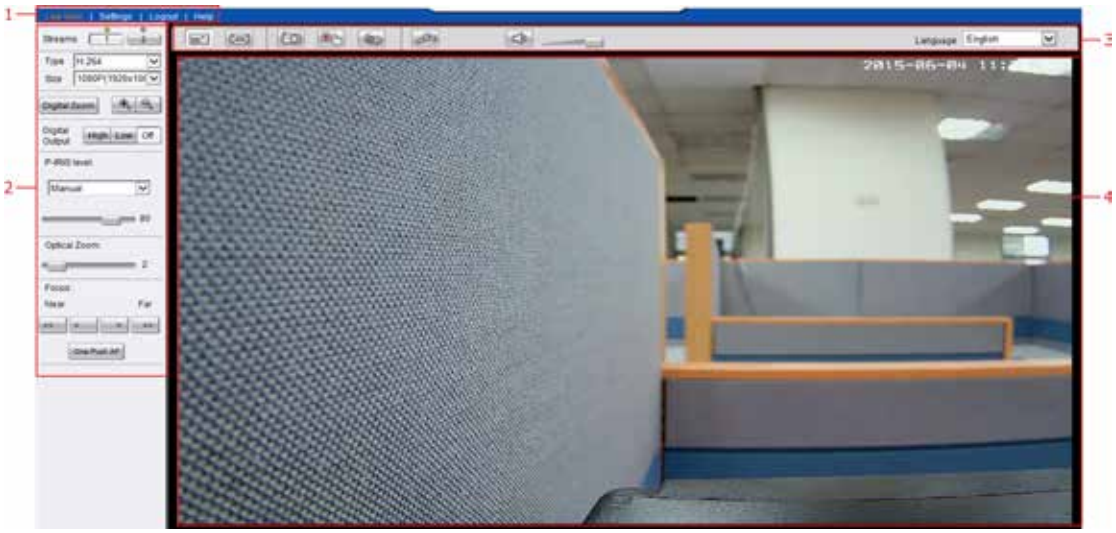
**For web interface, please look into this chapter; for IP Utility, please refer to Chapter 5.

| | | Web Interface | IP Utility |
|---|---|---|---|
| General | Basic Settings | V | X |
| | User Account | V | X |
| | Date & Time | V | X |
| Network | Network Configuration | V | Set IP Only |
| | Port Settings | V | X |
| | UpnP | V | X |
| | Wifi Setting (CAM1300/1311 Only) | V | X |
| Video & Audio Settings | Basic Settings | V | X |
| | Image Appearance Settings | V | X |
| | Video Streams | V | X |
| | Audio Settings | V | X |
| PTZ | RS-485 Settings/PTZ Settings | V | X |
| Recording | Recording Basic Settings | V | X |
| | Recorded File Management | V | X |
| Event Notification | Event Server | V | X |
| | Motion Detection | V | X |
| | Tampering Detection | V | X |
| | DI & DO | V | X |
| | Event Settings | V | X |
| System | MicroSD Card Management | V | X |
| | System Status | V | V |
| | System Log | V | X |
| | Firmware Upgrade | V | V |
| | Resetting to Factory Default Settings | V | X |

| | | | |
|---|---|---|---|
| | Export/Import | V | X |
| | Reboot | V | V |
| Camera Search | | X | V |
| Login | | V | V |
| Properties | | X | V |
| Delete from Tool | | X | V |
| Clearing and Setting Status | | X | V |
| Camera Group Actions | | X | V |
| Configuration Settings | | X | V |
| Focus Tool | | X | V |

# 4.1. Interface Layout

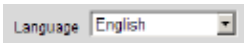
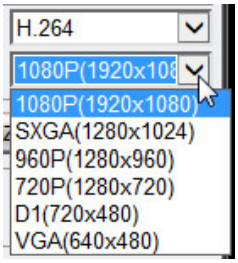
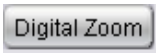
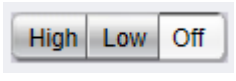
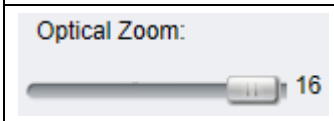
This section demonstrates the layout of the network camera's main interface. The 4 main areas on the interface are:

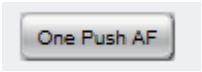
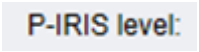
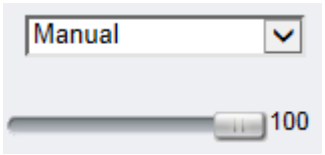
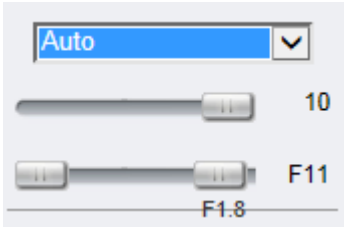


1. **Menu Bar** - The links on this bar allow users to toggle between live-view and settings screens, as well as logout and pull up the help menu.
2. **Live View Controls** - These controls allow users to configure the live view streams and camera live view functionality.
3. **Button Bar** - These controls allow the user to quickly access common features such as live view window resizing, video and still frame capture, interface language, and audio controls.
4. **Live View Window** - This portion of the screen displays the stream selected in the **Live View Control** section of the web interface.

## Control Descriptions

| Control | Description |
|---|---|
| | **Adjust Window Size:** When clicked, the display window size can be adjusted manually to fit the screen. The screen size changes back to the actual image size (resolution). |
| | **Full-Screen:** Goes to full-screen when clicked; press "ESC" to return to windowed view. |
| | **Image Capture:** When clicked, captures the current screen as an image in a new pop-up window. The location for saving the image can be changed under **Settings > Recording> Recording Basic Settings**. The file name is set to "Camera Name"+yyyymmdd_hhmmss (the Camera Name can be changed under **Settings > General> Basic Settings**). |
| | **Manual Record:** When clicked, records the current live video. Stops recording when clicked again. The location for storing the video can be changed under **Settings > Recording > Recording Basic Settings**. |
| | **Playback:** When clicked, playbacks the recordings according to the settings under **Settings > Recording > Recording Basic Settings**. |
| | **Audio-In:** Turned off by default; clicking once allows audio to be transmitted from a local microphone to the camera. Clicking again stops audio transmission. Multiple users may access the live view page and receive audio from the camera, but only one user at once is allowed to send audio to the camera. |
| | **Mute:** Mutes the audio captured by the camera when clicked, un-mutes the audio when clicked again. |
| | **Volume:** Sets to the current computer volume; Dragging the slider adjusts the volume. |

| Control | Description |
|---|---|
|  | **Language:** Sets the UI language. Available languages include English, Simplified Chinese, and Traditional Chinese. |
| | **Streams:** Allows users to choose which camera stream to view. The indicator above the stream will turn light green when the stream is selected. |
| | **Video Format:** Sets the compression format for the current stream. Available formats are H.264, MPEG4, and MJPEG. |
|  | **Image size (resolution):** Sets the resolution of the stream currently selected. Sets the resolution of the stream currently selected. Options are available for each stream: 1536P (2048 x 1536), 1080P (1920 x 1080), SXGA (1280 x 1024), 720P (1280 x 720), VGA (640 x 480), QVGA (320 x 240) for stream 1 and VGA (640 x 480), QVGA (320 x 240), QQVGA (160 x 120) for stream 2. |
|  | **Digital Zoom:** When clicked, activates digital zoom in the current live-view stream. 2 options are available when clicked:<br> **Zoom In**<br> **Zoom Out** |
| | **To set the digital output as high voltage or ground or off can be done here.**<br>  |
|  | **To magnify the image, change its focal length to vary its view from 0 to 16.** |

| Control | Description |
| --- | --- |
| | **Change the depth of field by adjusting the Near and Far steps.** |
|  | **AutoFocus can be achieved by pressing this button.** |
|  | **P-IRIS level can be adjusted Manually or Automatically.**<br>  <br>  |

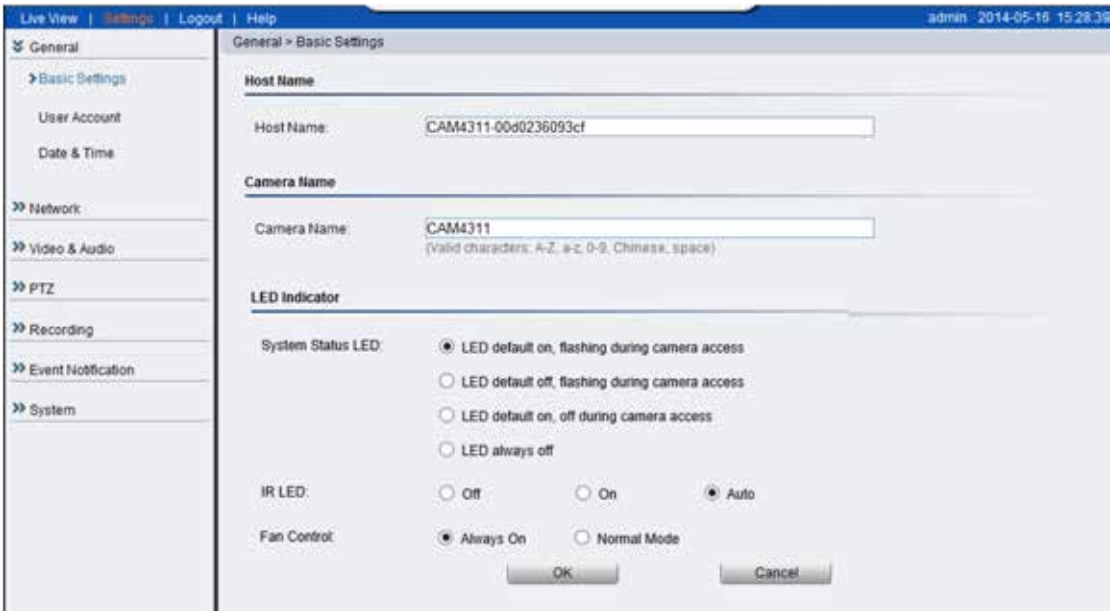
# 4.2. Settings

Camera settings may be changed by clicking on the **Settings** link located in the title bar. This will bring up a menu list of configuration menus for all major camera settings.

## General

General setting menus are found under **Settings > General**.

### Basic Settings




Basic settings may be accessed under **General > Basic Settings**. The following settings can be made:

- **Host Name:** by default set to "model name + MAC address"; displays on the center of the main page. Users may replace the default name with a new name consisting of alphanumeric characters, spaces and the ":" character.
- **Camera Name**: by default set to "model name"; after selecting Camera Name" from **Settings > Video & Audio> Basic Settings**, the Camera Name will show on the display. Users may replace the default name with a new name consisting of alphanumeric characters, spaces and the ":" character.

- **System Status LED:** changes the behavior of the status LED on the front of the camera. There are four possible behaviors:
  - **LED on when camera is on** - LED default on, flashing during camera access.
  - **LED on during camera access** - LED default off, flashing during camera access
  - **LED off during camera access** - LED default on, off during camera access
  - **LED always off** - LED always off
- **IR LED** – IR LED can be set to Off/On/Auto.
- **Fan Control** – Always On / Normal Mode.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## User Account

The User Account section, found under **General > User Account,** controls the user account information and privileges.

There are two pre-configured accounts:

- **admin** - This is the default administration account, and cannot be deleted.
- **guest** - This is an account with only live view capability.

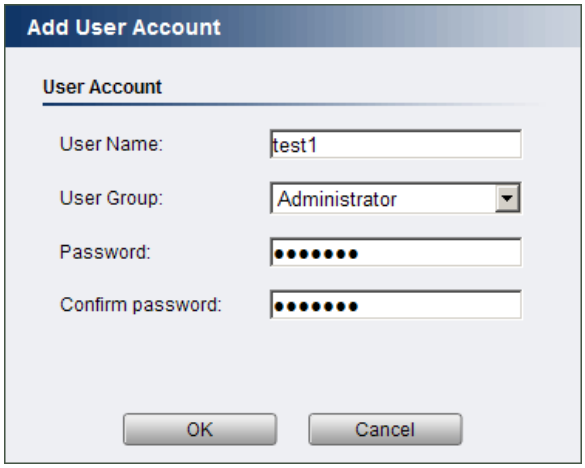
There are also two basic settings under user account settings:

- **Enable access without login** - Checking the checkbox will allow users to view the camera stream without having to login.
- **Maximum number of simultaneous viewers limited to** - Enter a number from 1 to 10 in this field to limit the number of users that can view the live view stream for this camera. This option will only be displayed once you add an account.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

### Adding Accounts

In **General> User Account** under the **User Account** heading, click on "Add". Up to 10 accounts can be added to the system.

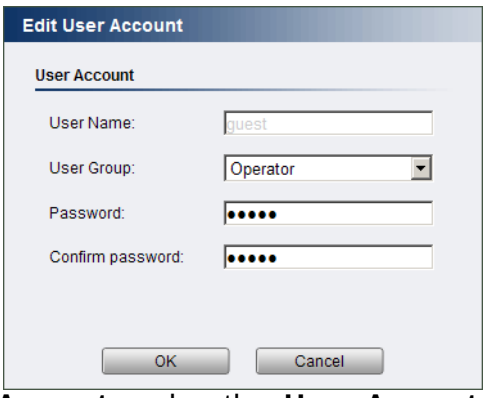



All User Names and Passwords must be combinations of alphanumeric characters, ":", "-", "_" between 4 and 20 characters in length, and must begin with an alphabet letter. Fill out the following fields:

- **User Name** - The identifier name used to login to the system.
- **User Group** - The system allows for 2 types of users.
  - **Administrator** - Administrators have full access privileges.
  - **Operator** - Operators can only access the live view page.
- **Password** - A passkey used to control user access. The password must be a combination of alphanumeric characters, ":", "-", "_" between 4 and 20 characters in length, and must begin with an alphabet letter. This password should be retyped in the **Confirm password** field, to ensure that the correct key is saved.

Click **OK** when finished to add the user to the system.

## Editing Accounts




In **General> User Account** under the **User Account** heading, select an existing account by clicking on the account entry. The entry will be highlighted in yellow. Clicking **Edit** will allow you to change the following fields:

- **User Group** - The system allows for 2 types of users.
  - **Administrator** - Administrators have full access privileges.
  - **Operator** - Operators can only access the live view page.
- **Password** - A passkey used to control user access. The password must be a combination of alphanumeric characters, ":", "-", "_" between 4 and 20 characters in length, and must begin with an alphabet letter. This password should be retyped in the **Confirm password** field, to ensure that the correct key is saved.

Click **OK** when finished to save any changes.

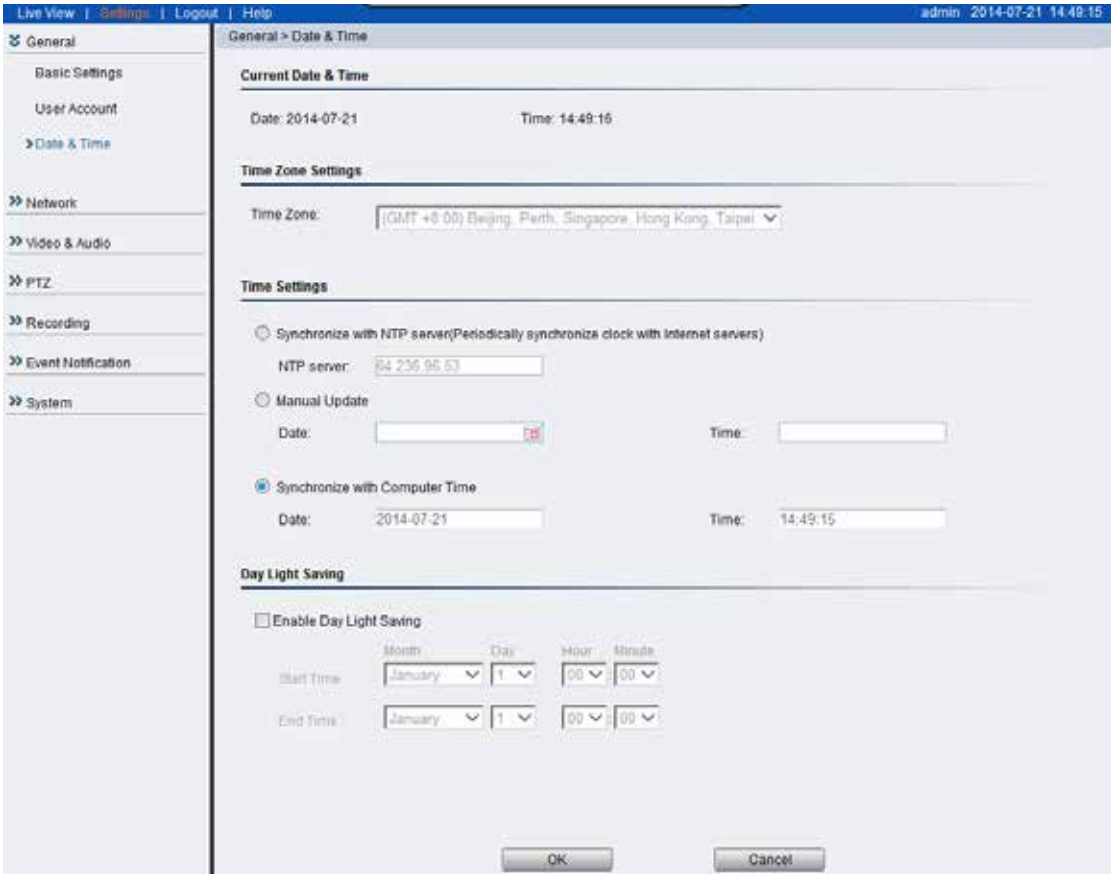
**Note:** Only accounts that are not currently logged-in can be edited.

## Deleting Accounts

In **General> User Account** under the **User Account** heading, select an existing account by clicking on the account entry. The entry will be highlighted in yellow. Click **Remove** and**,** when prompted to confirm deletion, click **OK** to remove the account.

## Date & Time

Date and time settings can be accessed at **General > Date & Time.**




*Current Date & Time* displays the current system date and time.

## Time Zone Settings

The time zone can be set using the dropdown menu. This menu is only applicable when selectable when **Synchronize with NTP Server** is chosen under **Time Settings**.

## Time Settings

There are 3 ways to set the system time:

- **Synchronize with NTP server** - NTP is a protocol for synchronizing the system clock to an external server. If this option is chosen, enter the IP address of a known NTP server in the **NTP Server** field. You must also choose the appropriate time zone under **Time Zone Settings**.
- **Manual update** - Updates the time manually. Choose the appropriate date and enter a time for the system.

- **Synchronize with computer time** - Synchronizes the time with the computer's internal clock.

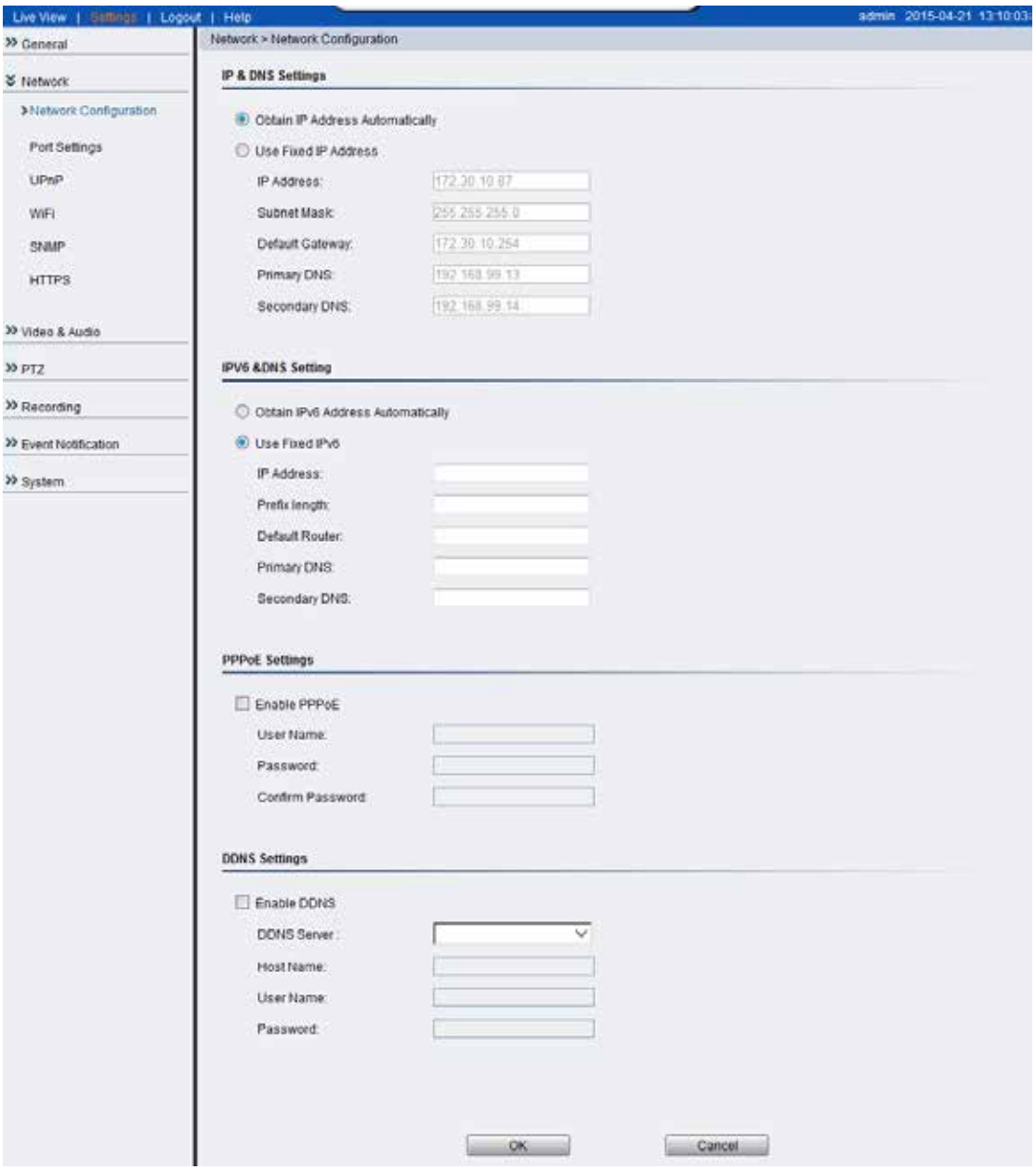
### Day Light Saving

Users can set the Day Light Saving Time by ticking on **Enable Day Light Saving**.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

# Network

The network settings, including network configuration, port configuration, and universal plug and play (UPnP) settings are used to configure camera connectivity. These settings are found under the **Settings > Network** context.



### Network Configuration

These settings are used to configure basic network access for the camera. They are found under **Network > Network Configuration**.

Most of these settings vary with your specific hardware setup; therefore the defaults are set for common SOHO level usage. If you are using the camera in an enterprise environment, please check with your IT department to determine the correct settings for this section.

### IP & DNS Settings

These settings are used determine the IP address of the network camera.

- **Obtain IP address automatically**: Automatically acquires IP address from a DHCP service. This is the default setting.
- **Use fixed IP address**: Sets a fixed IP address. You must also manually fill in IP address, Subnet mask, Default gateway, Primary DNS, and Secondary DNS fields. The network camera can be connected to the network upon completion.

### IPV6 & DNS Settings

This only works if your network environment and hardware equipment support IPv6.

- **Obtain IPv6 address automatically** – the network camera will listen to router advertisements and be assigned with a link-local IPv6 address accordingly.
- **Use fixed IPv6 address** - Sets a fixed IPv6 address. You must also manually fill in IP address, Prefix length, Default gateway, Primary DNS, and Secondary DNS fields. The network camera can be connected to the network upon completion.

### PPPoE Settings

This feature is disabled by default. Connecting to the network using PPPoE (Point-to-Point Protocol over Ethernet) requires a user name and password from your ISP (Internet Service Provider). Select **Enable PPPoE** and fill in valid user name and password to connect the camera to the Internet.

### DDNS Settings

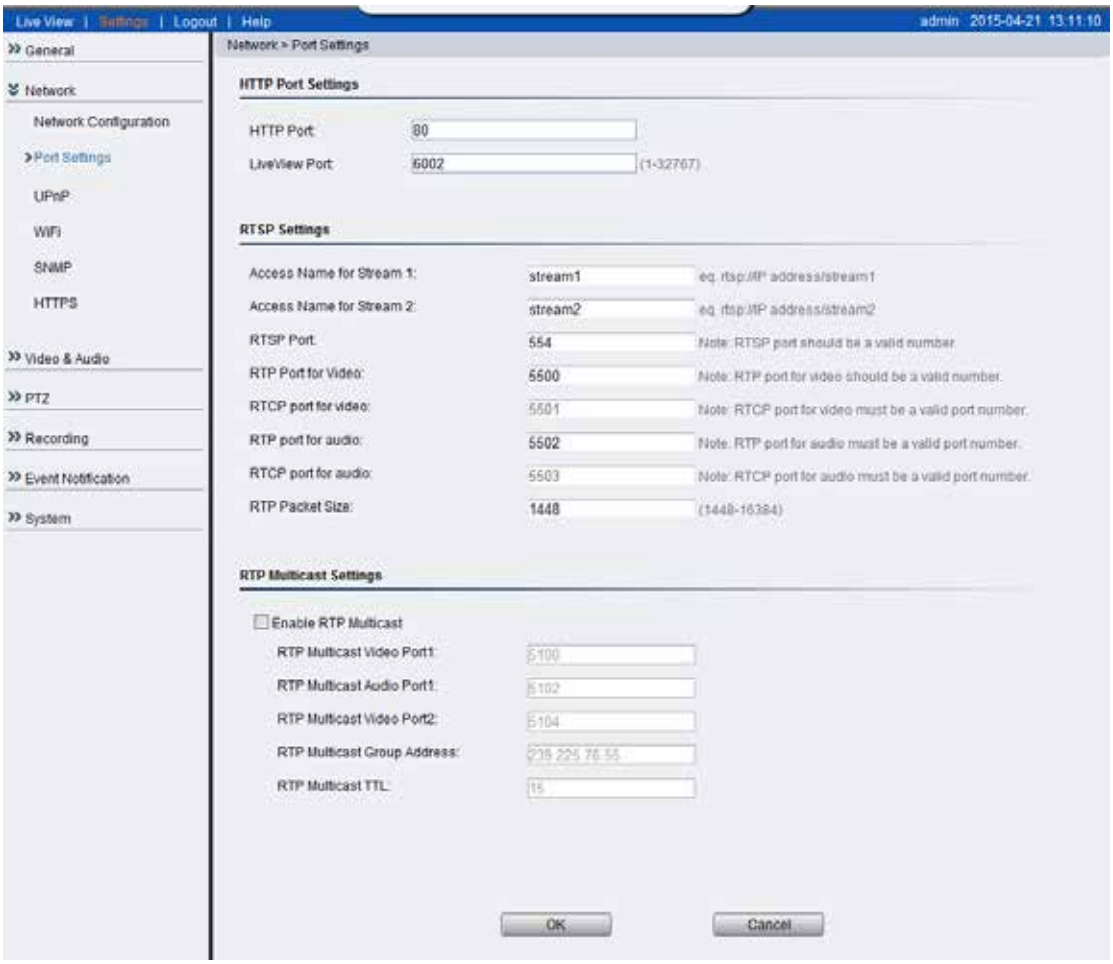
DDNS (Dynamic Domain Name Server) is a protocol that enables the camera to maintain a static connection address, even when its IP changes. Access using this feature is disabled by default.

Connecting using DDNS requires registration on third-party websites for DDNS services. Select desired DDNS service website, check the **Enable DDNS** option, and fill in valid user name and password. You can then access the camera through the registered domain name.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## Port Settings

Ports are a software construct used to multiplex the transmission information to and from the camera. They act as separate endpoints within an IP address where software "listens" for incoming information. This section, which can be accessed under **Network > Port Settings,** includes *HTTP Port Settings*, *RTSP Settings* and *RTP Multicast Settings*.


Live View | Settings | Logout | Help
admin 2015-04-21 13:11:10
General
Network
Network Configuration
Port Settings
UPnP
WiFi
SNMP
HTTPS
Video & Audio
PTZ
Recording
Event Notification
System
Network > Port Settings
HTTP Port Settings
HTTP Port: 80
LiveView Port: 6002 (1-32767)
RTSP Settings
Access Name for Stream 1: stream1 eg. rtsp://IP address/stream1
Access Name for Stream 2: stream2 eg. rtsp://IP address/stream2
RTSP Port: 554 Note: RTSP port should be a valid number.
RTP Port for Video: 5500 Note: RTP port for video should be a valid number.
RTCP port for video: 5501 Note: RTCP port for video must be a valid port number.
RTP port for audio: 5502 Note: RTP port for audio must be a valid port number.
RTCP port for audio: 5503 Note: RTCP port for audio must be a valid port number.
RTP Packet Size: 1448 (1448-16384)
RTP Multicast Settings
Enable RTP Multicast
RTP Multicast Video Port1: 5100
RTP Multicast Audio Port1: 5102
RTP Multicast Video Port2: 5104
RTP Multicast Group Address: 239.225.76.55
RTP Multicast TTL: 15
OK
Cancel

**Note:** The default port numbers in this section are, for the most part, well-known or commonly known values. We recommend that they not be changed unless there is a specific reason to do so.

### HTTP Port Settings

The **HTTP port** number is used access the camera via the HTTP protocol.

The **LiveView Port** number is used to transmit live-view information.

### RTSP Settings

Real-Time Streaming Protocol (RTSP) is a protocol used to establish and control media sessions between end points.

You may change the access name for stream 1, stream 2, the RTSP port number, the RTP port for video, the RTCP port for video, RTP port for audio, and RTCP port for audio.

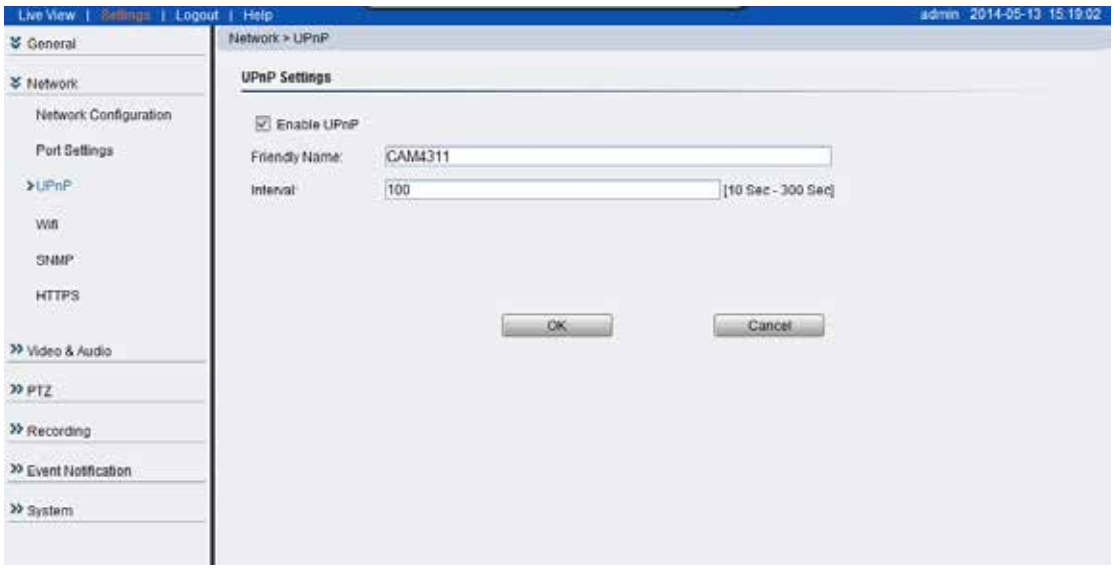
> **Note:** The RTP port number must be an even number. After entering the RTP port number, the RTCP port number will automatically be set to the RTP port number + 1.

### RTP Multicast Settings

Tick **Enable RTP Multicast** to set up multicast via the RTP protocol. The **RTP Multicast video/audio port and group address** can also be set**.**

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

### UpnP




Universal plug and play (UPnP) is a protocol that simplifies the implementation of networks by allowing new hardware to connect seamlessly

to a network. The settings for this feature can be found under **Network > UPnP**.

To enable UPnP, first check the **Enable UPnP** box. If you wish to change the default values, there are two fields that can be edited.

- **Friendly Name** - An identifier for the camera on the network.
- **Interval** - The time between camera-sent UPnP updates.

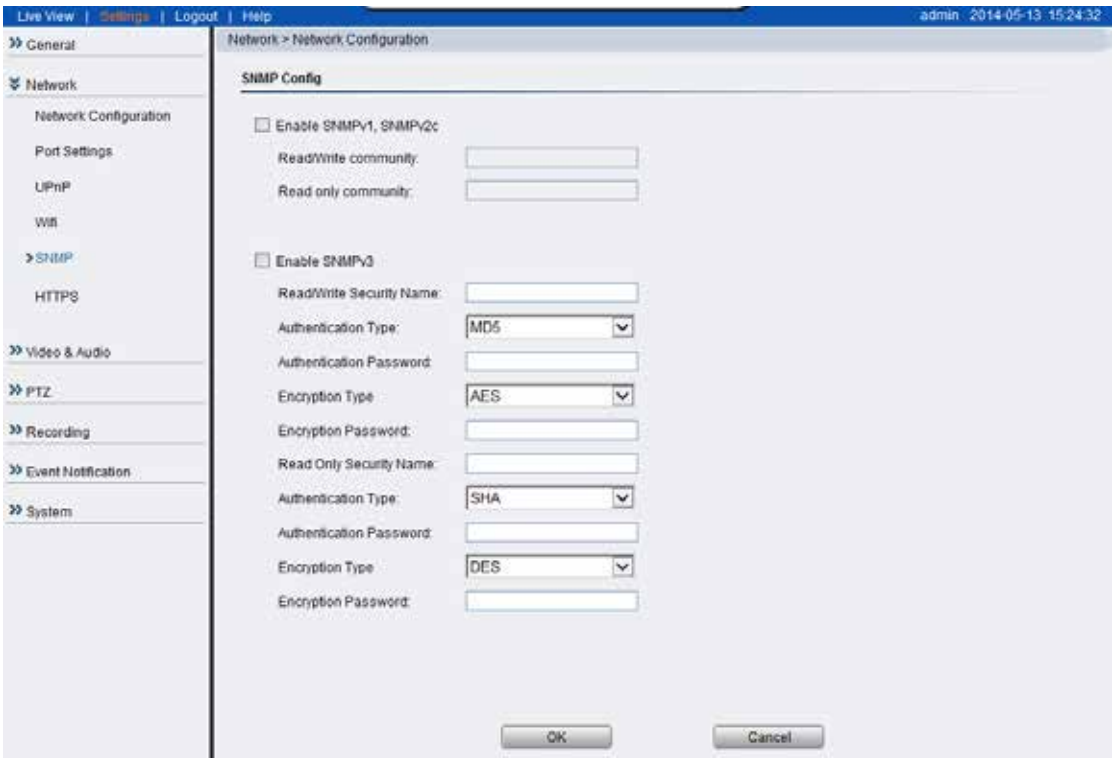
Click **OK** to activate UPnP or **Cancel** to abort the changes before you leave the page. Once activated, the camera will be visible to other devices on the network.

**Note:** If the computer does not have UPnP installed, you can add it by going to **Start > Control Panel > Add or Remove Programs**. In the Add or Remove Programs page, select **Add/Remove Windows Components > Networking Services** and click **Details**. Select **UPnP** from the popup window, and **OK** out to install **UPnP** services.

## WiFi

Wifi functionality is not supported for CAM4xxx series.

## SNMP




The Simple Network Management Protocol is an application layer protocol that facilitates the exchange of management information between network devices. It helps network administrators to remotely manage network devices and find, solve network problems with ease. The settings for this feature can be found under **Network > SNMP**.

l The SNMP consists of the following three key components:

1. Manager: Network-management station (NMS), a server which executes applications that monitor and control managed devices.

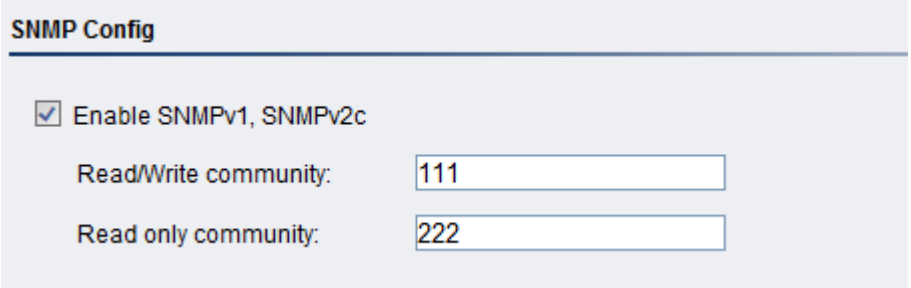
2. Agent: A network-management software module on a managed device which transfers the status of managed devices to the NMS.

3. Managed device: A network node on a managed network. For example: routers, switches, bridges, hubs, computer hosts, printers, IP telephones, network cameras, web server, and database.

Before configuring SNMP settings on the this page, please enable your NMS first.

To enable SNMP, check the **Enable SNMPv1, SNMPv2c** box.

Select this option and enter the names of Read/Write community and Read Only community according to your NMS settings. For example: 111/222.



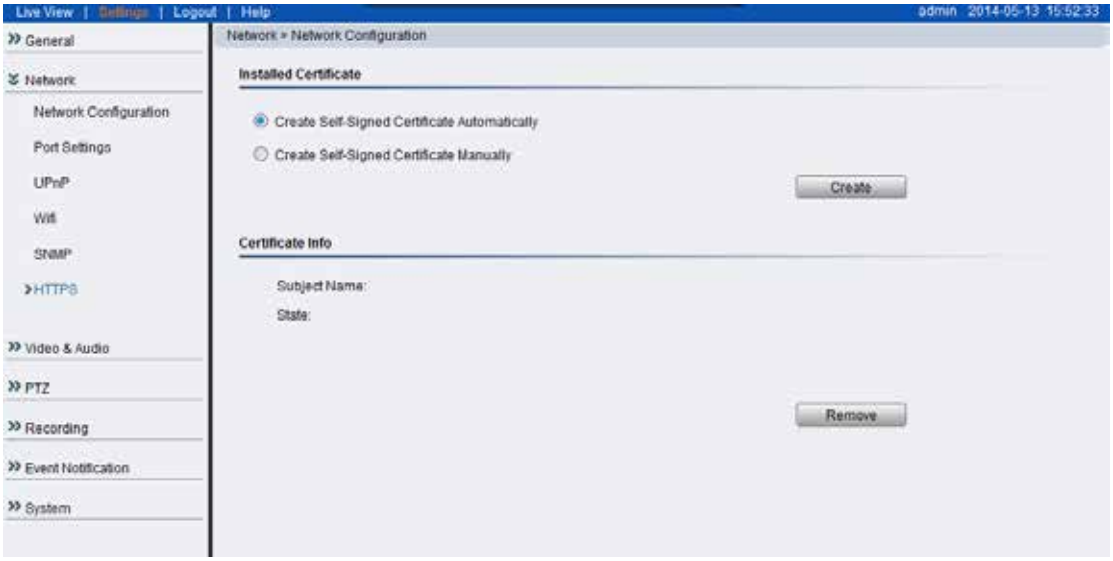

Check the **Enable SnMPv3**

This option contains cryptographic security, a higher security level, which allows you to set the Authentication password and the Encryption password.

- Security name: According to your NMS settings, choose Read/Write or Read Only and enter the community name.
- Authentication type: Select MD5 or SHA as the authentication method.
- Authentication password: Enter the password for authentication (at least 8 characters).
- Encryption password: Enter a password for encryption (at least 8 characters).

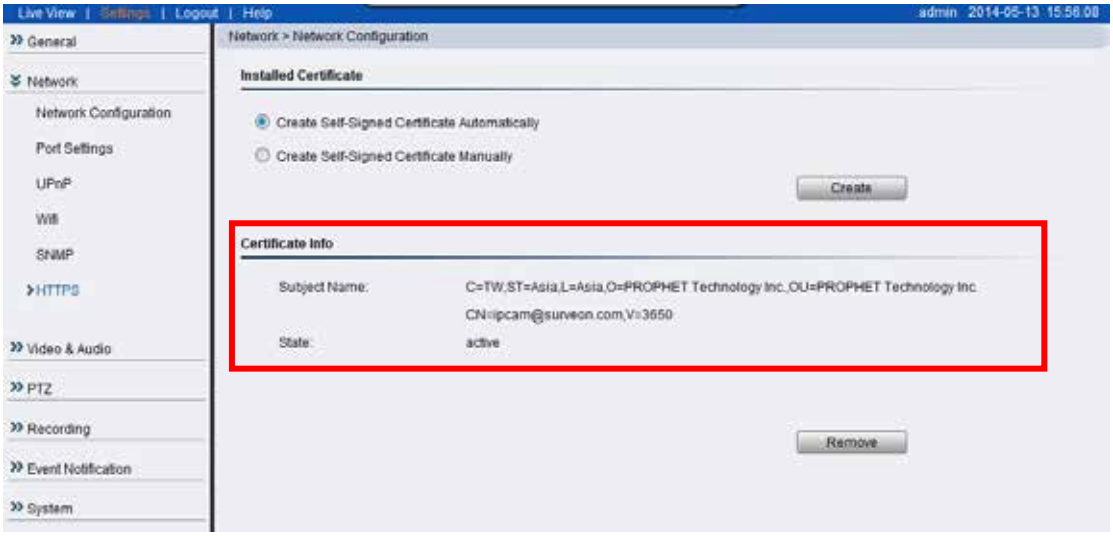
Click **OK** to activate SNMP or **Cancel** to abort the changes before you leave the page. Once activated, the camera will be visible to other devices on the network.

## HTTPS (not supported for CAM4371HEV/HEM, CAM4471HEM/HEV, CAM4411S2/S3/S4/S6)




Hypertext Transfer Protocol Secure (HTTPS) is a communications protocol for secure communication over a computer network, with especially wide deployment on the internet.

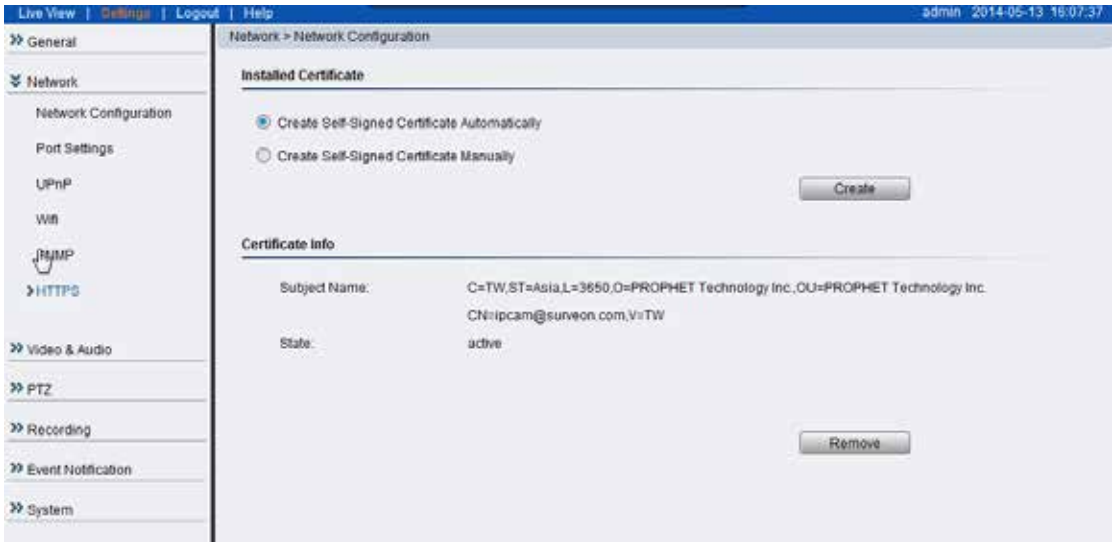
Select **Create Self-Signed Certificate Automatically** and click **"Create"** to have the certification authority automatically. Once succeed, you will see the **Certificate Info** in the next section of this web page.




Click **"Remove"** to delete the set certificate if you wish to change the setting.

Or **Select Self-Signed Certificate Manually** and click **"Create"** to have the certification authority manually. A window will be prompted for creating certificate information.

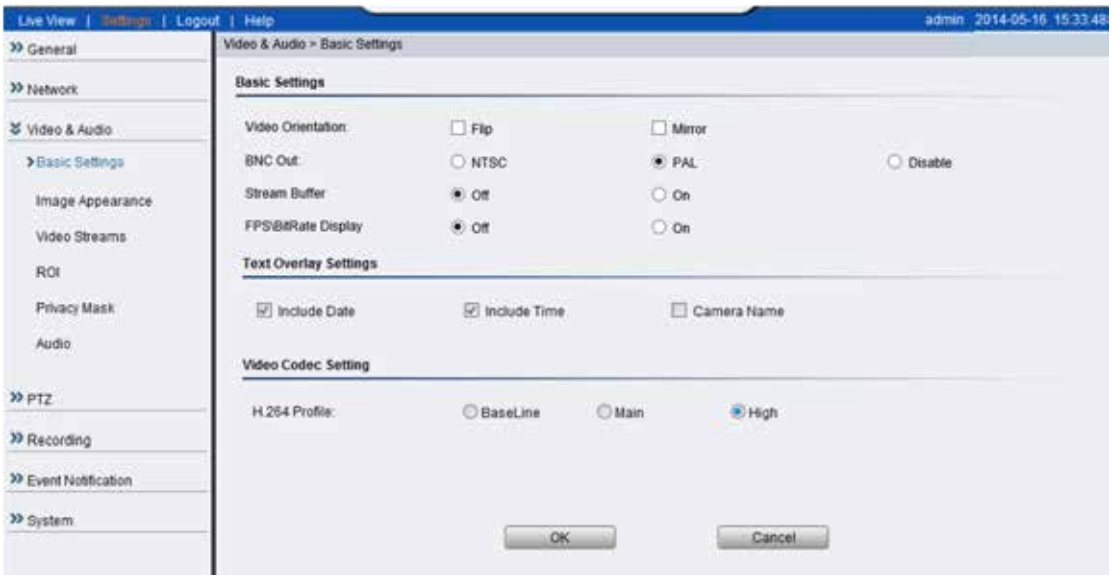
Edit the information in the files if necessary and click **"OK"** to confirm the setting. Once succeed, you will see the **Certificate Info** in the next section of this web page.




Click **"Remove"** to delete the set certificate if you wish to change the setting.

# Video & Audio Settings

Video and audio are the heat of a network camera's functionality. The settings for video and audio can be found under **Settings > Video & Audio**. Under this section, you can access basic video and audio settings, video appearance parameters, video stream settings, as well as audio parameters.




## Basic Settings

Basic settings pertain to simple live-view tweaks. These parameters can be found under **Video & Audio> Basic Settings**.

### l Video Orientation

In certain mounting situations, the default video output may not be oriented correctly. This setting allows you to change the orientation of the output video.

- **Flip** - flips the image vertically.
- **Mirror** - flips the image horizontally.

### l BNC Out

- NTSC
- PAL
- Disable

- **Stream Buffer**
  - Off
  - On

- **FPS\BitRate Display**
  - Off
  - On

### Text Overlay Setting

The text overlay involves is the text displayed in the black bar at the top of the output screen. You can display multiple text messages at the same time. (Only the camera name will display if the resolution is 160 x 120).

- **Include Date** - Displays the current date.
- **Include Time** - Displays the current time.
- **Camera Name** - Displays the name of the camera.

### Video Codec Setting

H.264 profile can be further set to:

- **BaseLine** - restricts the encoder to certain basic features only for mobile applications.
- **Main** - is used for standard-definition digital TV broadcasts that use the MPEG-4 format as defined in the DVB standard.
- **High** - is used for high-definition broadcasts and disc storage applications.

## Image Appearance Settings

These settings, found under **Video & Audio > Image Appearance**, deal with the video output of the camera. There are two tabs, *Image Attributes* and *Sensor Configuration,* as well as *Advanced Settings*.

## Image Appearance (for CAM4211/4221)

## Image Attributes

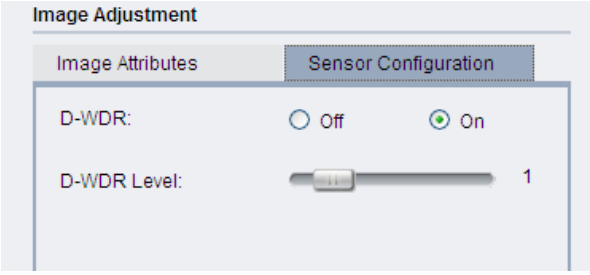
These parameters deal with the image lighting and color. All parameters are values ranging from (0) to (100). Dragging the slider to the right increases the value, while dragging to the left lowers the value. The adjustments will be displayed in real-time in the window to the left of the sliders.

- **Brightness** - Adjusts the brightness of the image.

**Note:** In certain situations, the sensor may experience banding issues. In these cases, please turn raise the brightness.

- **Saturation** - Adjusts the saturation of the image.
- **Contrast** - Adjusts the contrast of the image.
- **Sharpness** - Adjusts the sharpness of the image.

## Sensor Configuration

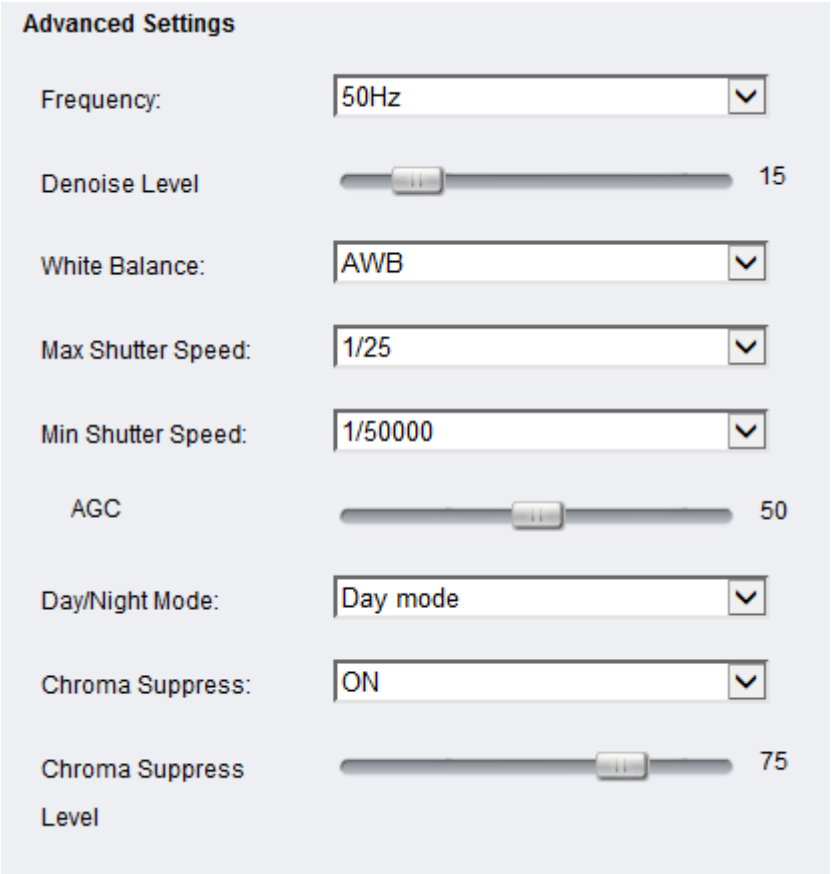



The *Sensor Configuration* can be accessed by clicking on the tab to the right of the *Image Attributes* tab. The following parameters can be changed:

- D-WDR - Specifies if the wide dynamic range (WDR) function is activated. If activated, the WDR function will attempt to preserve detail at contrast extremes.
  - D-WDR Level- Specifies the WDR correction level ranging from 1 (least) to 10 (most).

## Advanced Settings

The *Advanced Settings* allow you to make changes to the following parameters:



- **Frequency** - The user can choose to compensate for 50Hz or 60Hz lighting.
- **Denoise** – Removes video noises.
- **Max Shutter Speed** - Longer shutter times allow more light into the sensor, resulting in a cleaner picture, however longer shutter times can result in motion blur. The user may choose the following shutter speeds: 1/2s, 1/5s, 1/7.5, 1/15s, 1/30s, 1/60s, 1/120s, 1/250s, 1/500s, 1/1000s and 1/10000s.
- **AGC Gain** - Automatic gain control (AGC) adjusts the video gain level to a variety of inputs. This setting provides a baseline value for the AGC. Values higher than this will be darkened, and values that are lower will be brightened. AGC should be adjusted so that the area of interest is best lit.
- **White Balance** - This setting allows users to choose the color balancing method used.
    - **AWB** - Automatically chooses white level.
    - **MWB** - The user must specify the red and blue gain levels to achieve the correct white level.
        - **R Gain** - The gain applied to the red video channel.
        - **B Gain** - The gain applied to the blue video channel.
- **Day/Night Mode** - Sets the day (color) and night (black and white, IR cut filter off where applicable.) Night mode sacrifices color information to produce a clear picture with less light.
    - **Auto** – The camera will automatically choose between day/night mode.
        - **Night Threshold** – Once selected, the camera will switch to night mode. Set the value in 0~255.
        - **Day Threshold** - Once selected, the camera will switch to day mode. Set the value in 0~255.
    - **Day mode** - Forces day mode.
    - **Night mode** - Forces night mode.
    - **Schedule for day mode** - Allows the user to set a time for day/night transitions.

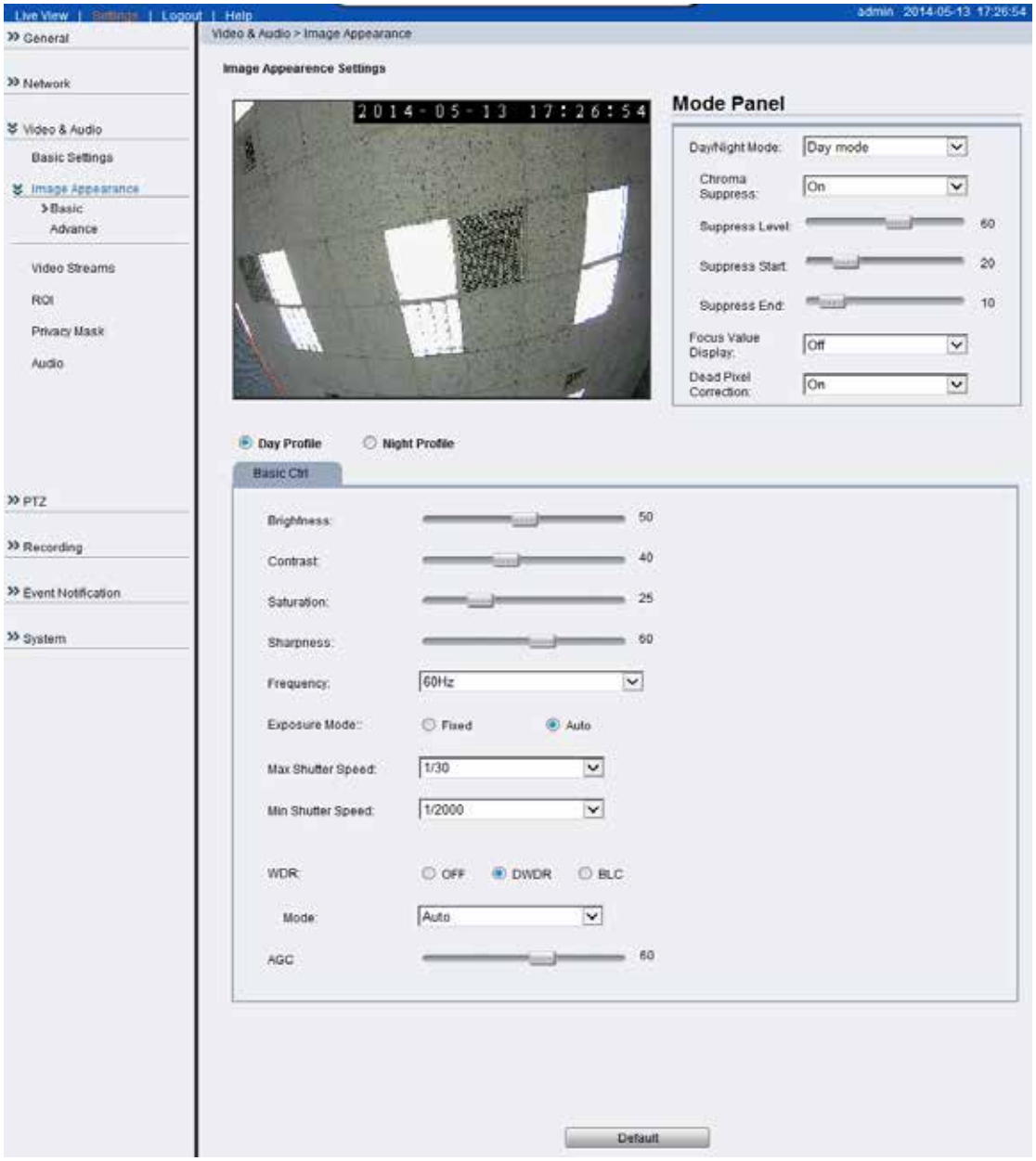
- **From:** - The time, in hours and minutes, when the camera will be in day mode.
- **To:** - The time, in hours and minutes, when the camera will switch to night mode.

Ÿ **Chroma Suppress** - Reduces the false color phenomena.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## Image Appearance

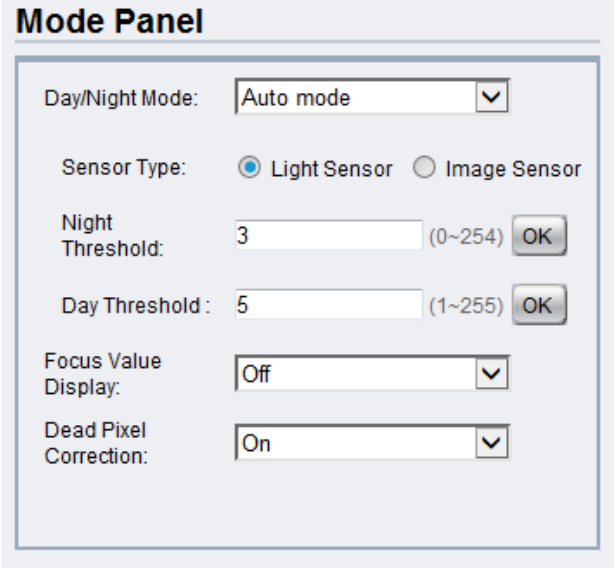
## (for CAM4351R2/4361RV/4361LV/4311S2/4321SV/4321LV/4421LV/4461LV4521LV/4561LV)




## Mode Panel

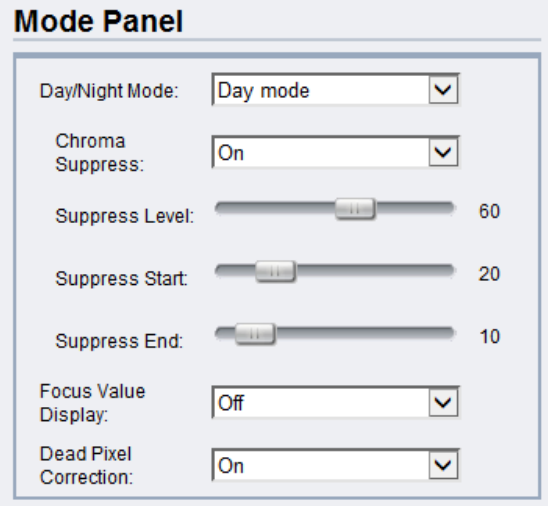
**Day/Night Mode** - Sets the day (color) and night (black and white, IR cut filter off where applicable.) Night mode sacrifices color information to produce a clear picture with less light.

- **Auto Mode** - The camera will determine when the light levels require a switch.



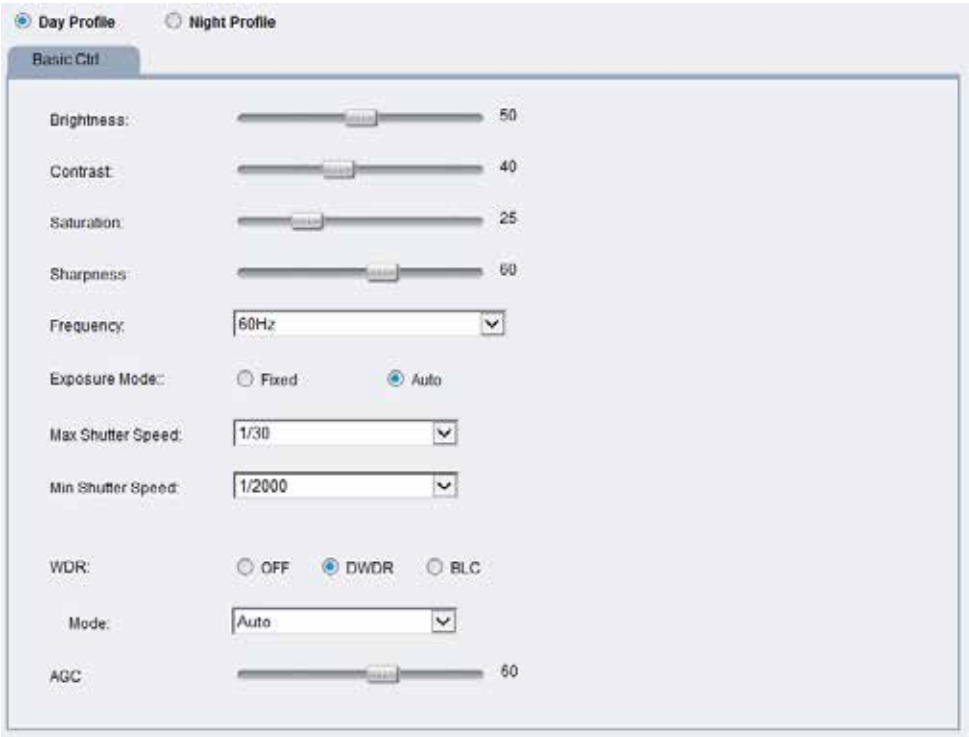

- **Sensor Type** – The sensor can be selected to
  - **Light Sensor**
  - **Image Sensor**
  - **Night Threshold** - The threshold which the camera will switch to night mode.
  - **Day Threshold** - The threshold which the camera will switch back to day mode.
  - **Focus Value Display** – On/Off
  - **Dead Pixel Correction** – On/Off

- **Day mode** - Forces day mode.




  - **Chroma Suppress** - Reduces the false color phenomena.
  - **Suppress Level**
  - **Suppress Start**
  - **Suppress End**
  - **Focus Value Display –** On/Off
  - **Dead Pixel Correction –** On/Off

- **Day Profile**

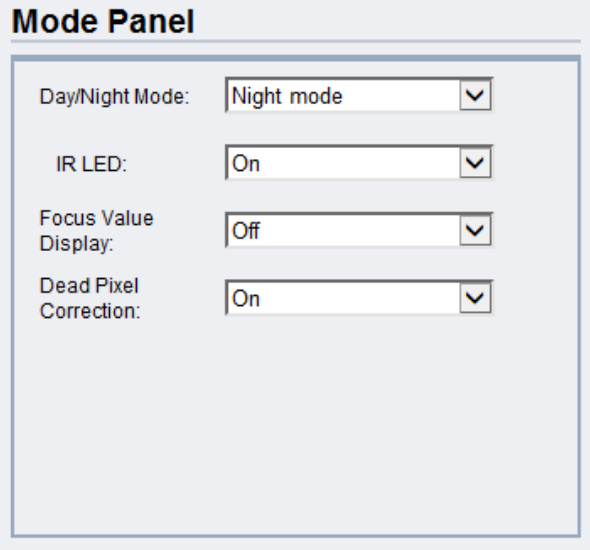


- **Brightness** - Adjusts the perceived light intensity of the image.

**Note:** In certain situations, the sensor may experience banding issues. In these cases, please raise the brightness.

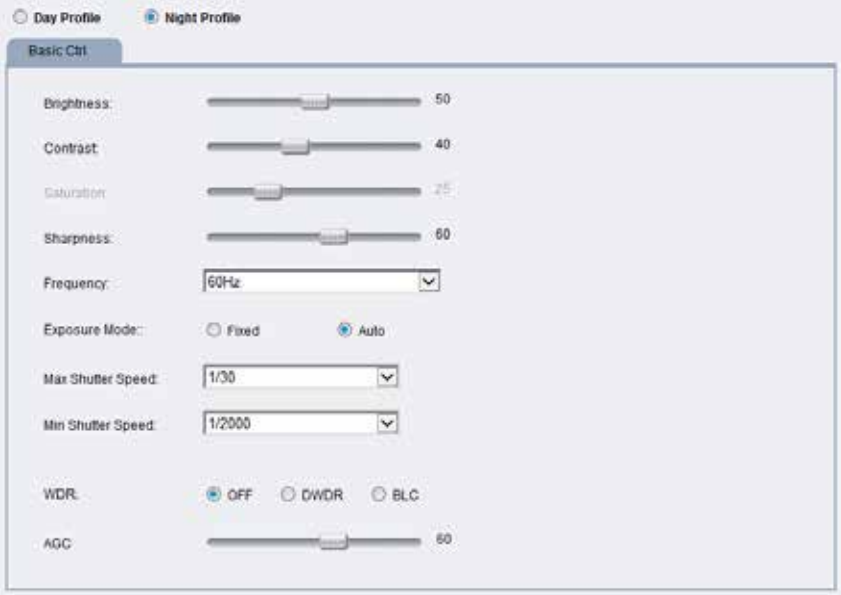
- **Contrast –** Adjusts the overall difference in the light vs. dark areas.
- **Saturation –** Adjusts the colorfulness of a color relative to its own brightness.
- **Sharpness** - Adjusts the edge contrast of the image.
- **Frequency** - The user can choose to compensate for 50Hz or 60Hz lighting.
- **Exposure Mode** – Fixed/Auto
- **Max Shutter Speed** – The user may choose the following shutter speeds: 1/1s ~ 1/1000000s.
- **Min Shutter Speed** –The user may choose the following shutter speeds: 1/1s ~ 1/1000000s.
- **WDR** –**WDR** –Off /DWDR (Digital Wide Dynamic Range) /BLC(Backlight Compensation)
- **Auto Iris** – On/Off
- **AGC**- Automatic gain control (AGC) adjusts the video gain level to a variety of inputs. This setting provides a baseline value for the AGC. Values higher than this will be darkened, and values that are lower will be brightened. AGC should be adjusted so that the area of interest is best lit.

- **Night mode** - Forces night mode.




  - **IR LED** – On/Off
  - **Focus Value Display** – On/Off
  - **Dead Pixel Correction** – On/Off

- **Night Profile**

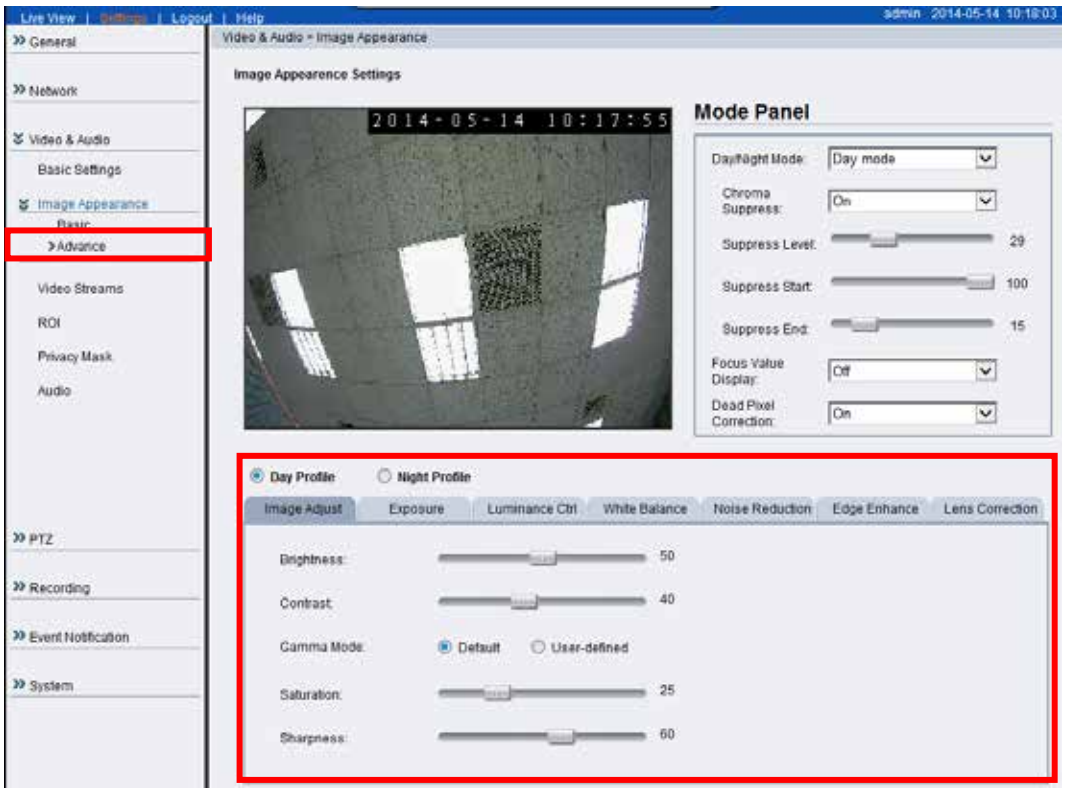



- **Brightness** - Adjusts the perceived light intensity of the image.

**Note:** In certain situations, the sensor may experience banding issues. In these cases, please raise the brightness.

- **Contrast –** Adjusts the overall difference in the light vs. dark areas.
- **Saturation –** Adjusts the colorfulness of a color relative to its own brightness.
- **Sharpness** - Adjusts the edge contrast of the image.
- **Frequency** - The user can choose to compensate for 50Hz or 60Hz lighting.
- **Exposure Mode** – Fixed/Auto
- **Max Shutter Speed** – The user may choose the following shutter speeds: 1/1s ~ 1/1000000s.
- **Min Shutter Speed** –The user may choose the following shutter speeds: 1/1s ~ 1/1000000s.
- **WDR** –Off /DWDR (Digital Wide Dynamic Range) /BLC(Backlight Compensation)
- **Auto Iris** – On/Off
- **AGC**- Automatic gain control (AGC) adjusts the video gain level to a variety of inputs. This setting provides a baseline value for the AGC. Values higher than this will be darkened, and values that are lower will be brightened. AGC should be adjusted so that the area of interest is best lit.

## Advanced Day Profile/Night Profile




The parameters deal with the image lighting and color. Dragging the slider to increase and lower the value. The adjustments will be shown in the preview window.

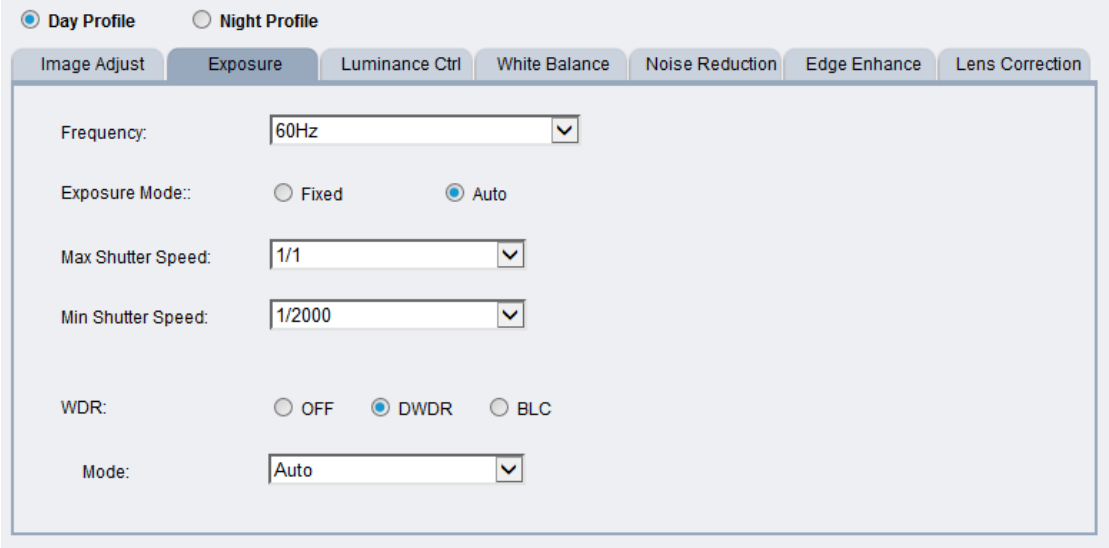
### Image Adjust

- **Brightness** - Adjusts the perceived light intensity of the image.

**Note:** In certain situations, the sensor may experience banding issues. In these cases, please raise the brightness.

- **Contrast –** Adjusts the overall difference in the light vs dark areas.
- **Gamma** – Adjusts the color error of the image.
- **Saturation –** Adjusts the colorfulness of a color relative to its own brightness.
- **Sharpness** - Adjusts the edge contrast of the image.

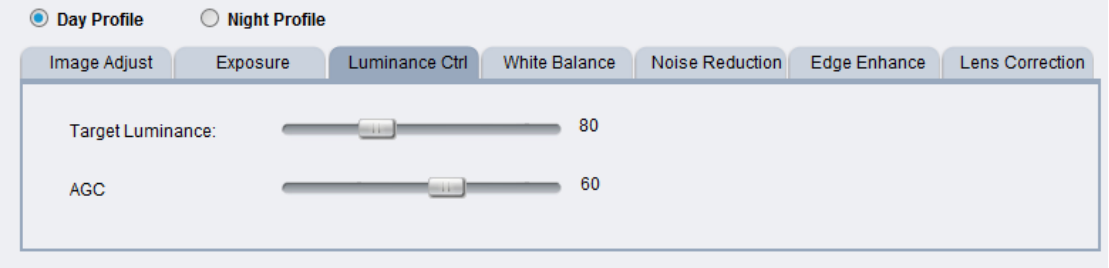
## Exposure




The parameters deal with the image lighting and color. Dragging the slider to increase and lower the value. The adjustments will be shown in the preview window.

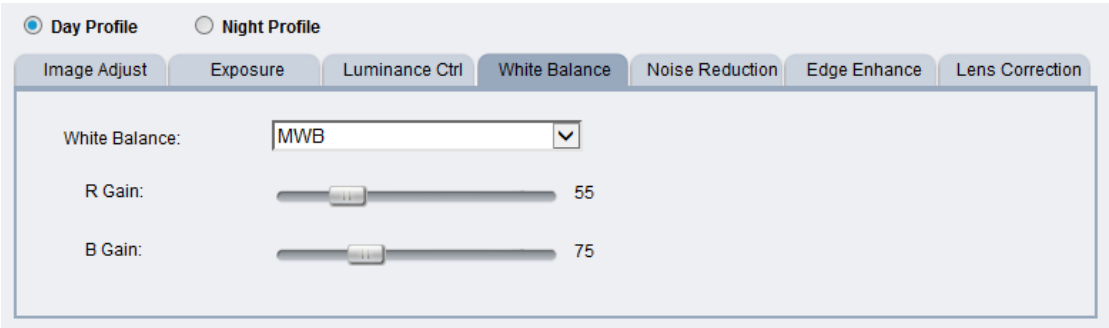
- **Frequency** –Reduces flickering caused by the difference in frequency of the system and the environment lighting. The user can choose to compensate for a 50Hz or 60Hz lighting.
- **Exposure Mode** –Sets how the camera captures images. Longer shutter times allow more light into the sensor, resulting in a cleaner picture, however longer shutter times can result in motion blur.
  - **Fixed**
  - **Auto** –The camera will automatically change the shutter speed and gain balance between image quality and frame rate when there is insufficient light to preserve both.
- **Max Shutter Speed** –Can be selected from 1/1 to 1/1000000.
- **Min Shutter Speed** –Can be selected from 1/1 to 1/1000000.
- **WDR** – Can be set as off to disable this functionality, set as DWDR or HDR (for CAM4471V/-M/-MP only) to enable the functionalities.
- **Mode** – Auto/Manual

## Luminance Ctrl




- **Target Luminance** - Adjusts the lightness of the image.
- **AGC** - Automatic gain control (AGC) adjusts the video gain level to a variety of inputs. This setting provides a baseline value for the AGC. Values higher than this will be darkened, and values that are lower will be brightened. AGC should be adjusted so that the area of interest is best lit.

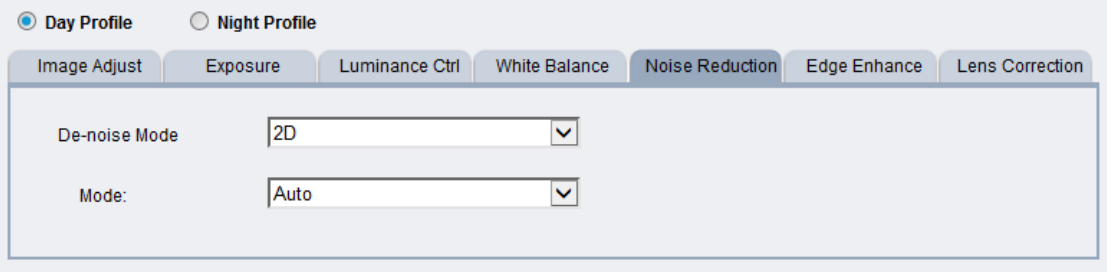
## White Balance




This setting allows users to choose the color balancing method used.

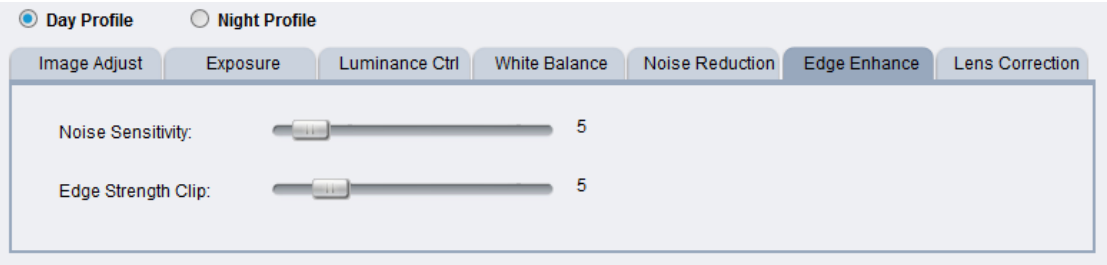
- **AWB** - Automatically chooses white level.
- **MWB** - The user must specify the red and blue gain levels to achieve the correct white level.
  - **R Gain** - The gain applied to the red video channel.
  - **B Gain** - The gain applied to the blue video channel.

## Noise Reduction



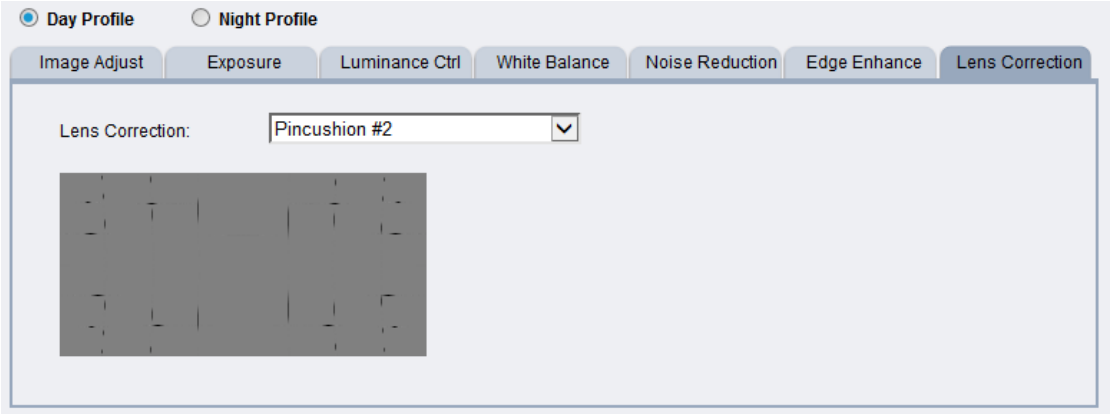

- **De-noise Mode** – Removes video noises.
  - **OFF** - Can be set to disable this functionality
  - **2DNR** – Reduces noises.
  - **3DNR** – Reduces noises in low light conditions and even with moving objects.
  - **BLEND** – Blends 2DNR and 3DNR to create clear images.
- **Mode** – Auto/Manual

## Edge Enhance



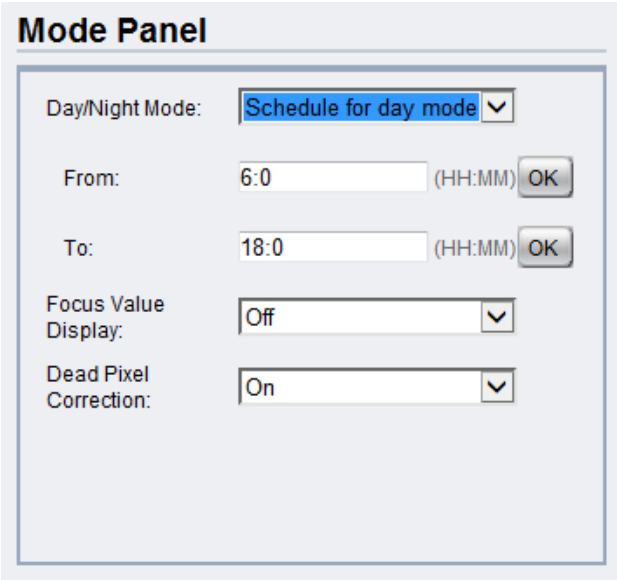

- **Noise Sensitivity** – Senses the noise**.**
- **Edge Strength Clip** – Enhances the edges of the image.

## Lens Correction



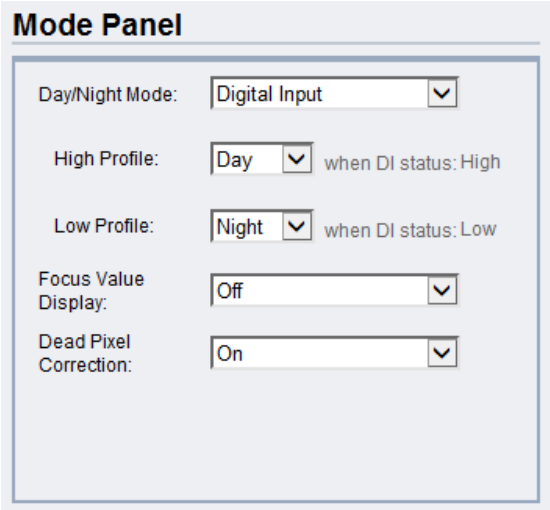

Correct the barrel distortions and pincushion distortions of images while using wide-angle lenses.

- **Schedule for day mode** - Allows the user to set a time for day/night transitions.




  - **From:** - The time, in hours and minutes, when the camera will be in day mode.
  - **To:** - The time, in hours and minutes, when the camera will switch to night mode.
  - **Focus Value Display** – On/Off
  - **Dead Pixel Correction** – On/Off

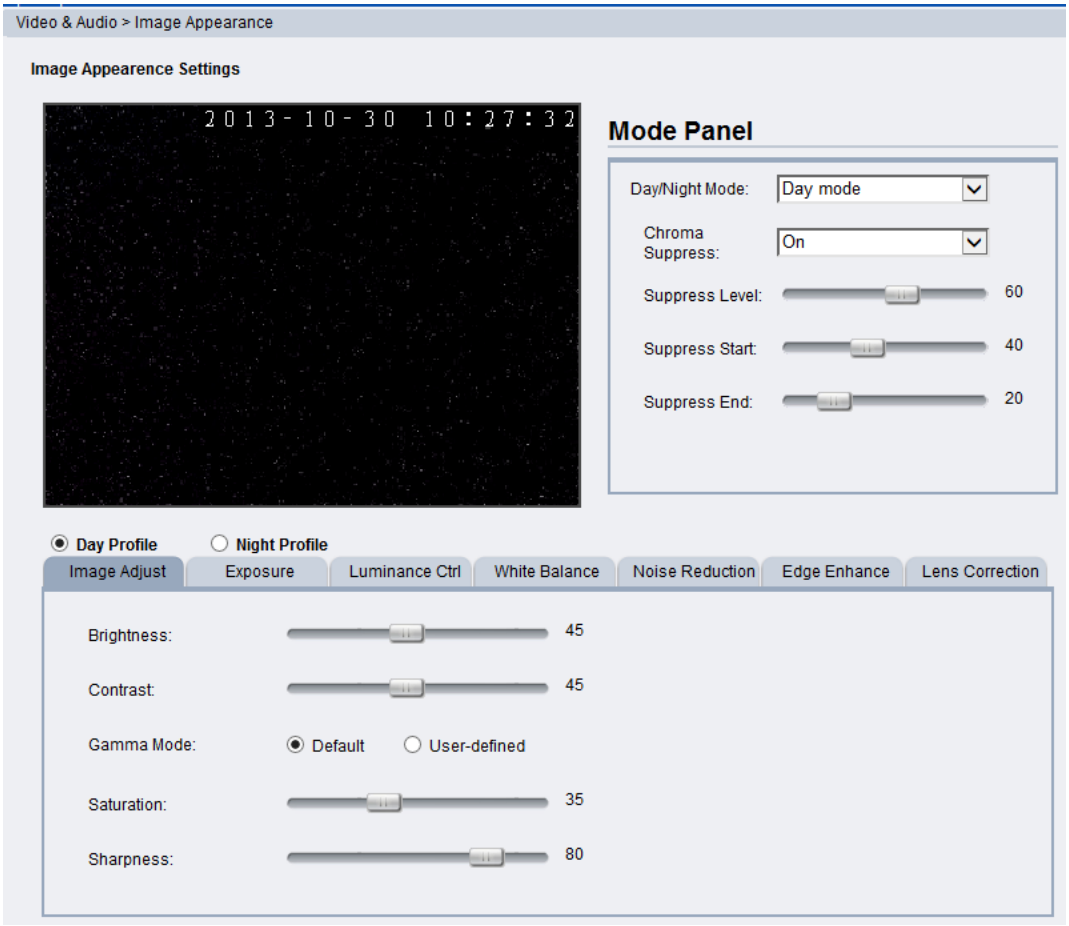
- **Digital Input** - The Camera automatically removes the IR cut filter when DI triggers.




  - **High Profile -** Day/Night.
  - **Low Profile** - Day/Night.
  - **Focus Value Display** – On/Off
  - **Dead Pixel Correction** – On/Off

## Image Appearance

## (for CAM4471V/4471M/4471MP/4571M/4571MP/4571VP)

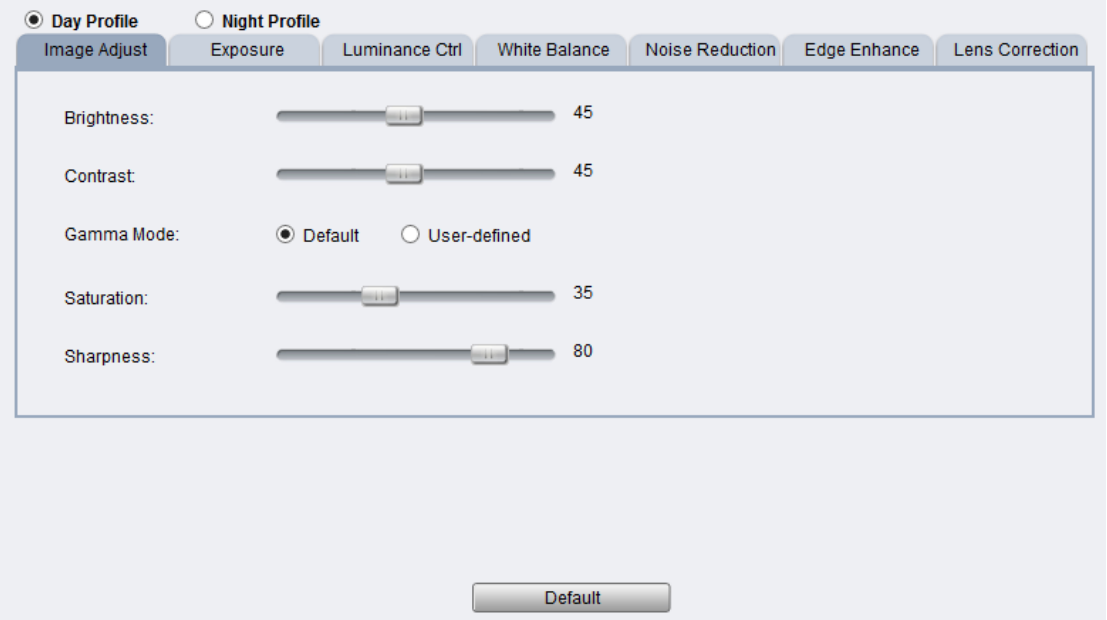



### Model Panel

- **Day/Night Mode** - Sets the day (color) and night (black and white, IR cut filter off when applicable.) Night mode sacrifices color information to produce a clear image quality.
  - **Auto mode**- The camera will determine when to switch.
  - **Day mode** - Forces day mode.
    - **Chroma Suppress** - Reduces the false color phenomena.
    - **Suppress Level** – The strength of spatial frequency can be adjusted from 0 to 100.
    - **Suppress Start** – Suppression can be started from 0 to 100.
    - **Suppress End** –Suppression can be ended from 0 to 100.
  - **Night mode** - Forces night mode.

- **Schedule for day mode** - Allows users to set a day/night transition time.

## Day Profile/Night Profile




The parameters deal with the image lighting and color. Dragging the slider to increase and lower the value. The adjustments will be shown in the preview window.

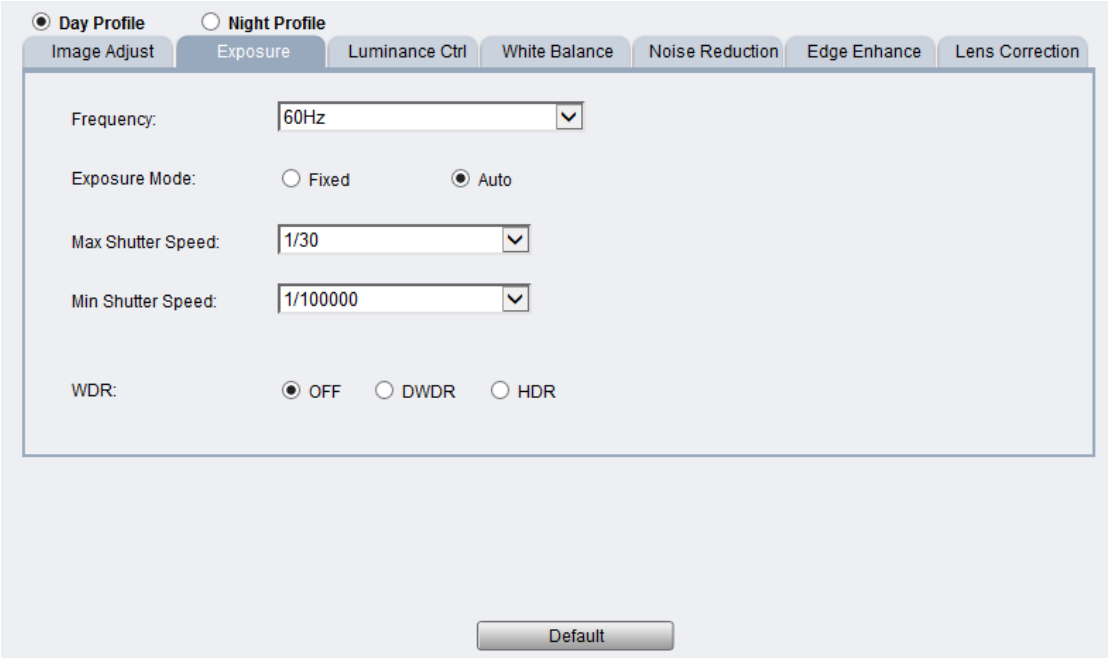
### Image Adjust

- **Brightness** - Adjusts the perceived light intensity of the image.

**Note:** In certain situations, the sensor may experience banding issues. In these cases, please raise the brightness.

- **Contrast –** Adjusts the overall difference in the light vs dark areas.
- **Gamma** – Adjusts the color error of the image.
- **Saturation –** Adjusts the colorfulness of a color relative to its own brightness.
- **Sharpness** - Adjusts the edge contrast of the image.

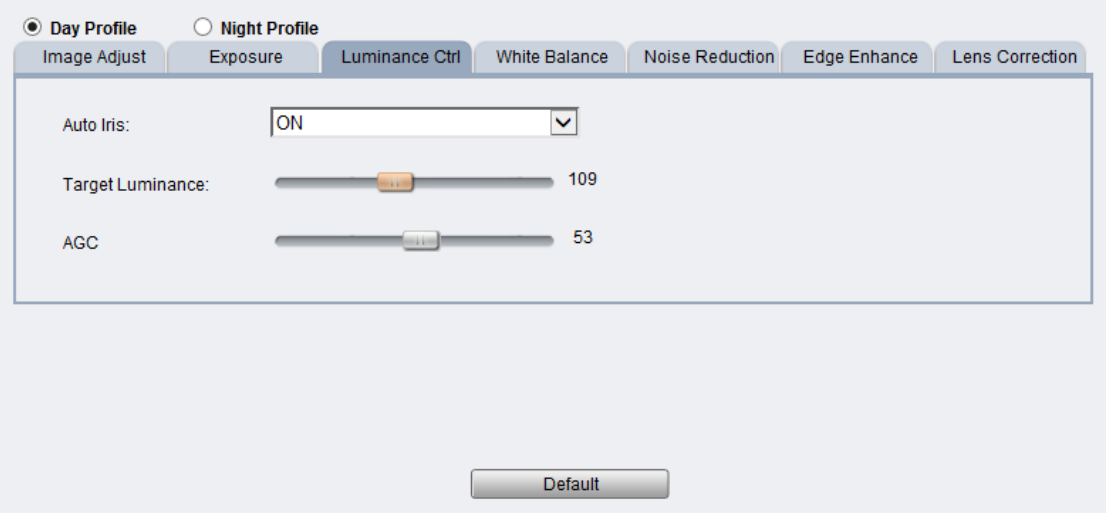
## Exposure




The parameters deal with the image lighting and color. Dragging the slider to increase and lower the value. The adjustments will be shown in the preview window.

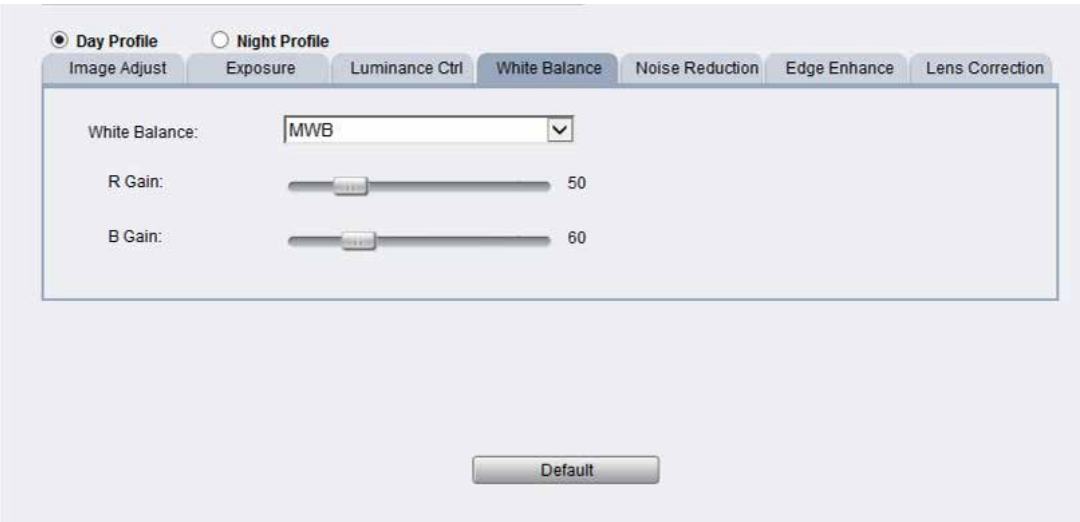
- **Frequency** –Reduces flickering caused by the difference in frequency of the system and the environment lighting. The user can choose to compensate for a 50Hz or 60Hz lighting.
- **Exposure Mode** –Sets how the camera captures images. Longer shutter times allow more light into the sensor, resulting in a cleaner picture, however longer shutter times can result in motion blur.
  - **Fixed**
  - **Auto** –The camera will automatically change the shutter speed and gain balance between image quality and frame rate when there is insufficient light to preserve both.
- **Max Shutter Speed** –Can be selected from 1/1 to 1/1000000.
- **Min Shutter Speed** –Can be selected from 1/1 to 1/1000000.
- **WDR** – Can be set as off to disable this functionality, set as DWDR or HDR (for CAM4471V/-M/-MP only) to enable the functionalities.

## Luminance Ctrl




- **Auto Iris** – Adjusts the iris automatically.
- **Target Luminance** - Adjusts the lightness of the image.
- **AGC** - Automatic gain control (AGC) adjusts the video gain level to a variety of inputs. This setting provides a baseline value for the AGC. Values higher than this will be darkened, and values that are lower will be brightened. AGC should be adjusted so that the area of interest is best lit.

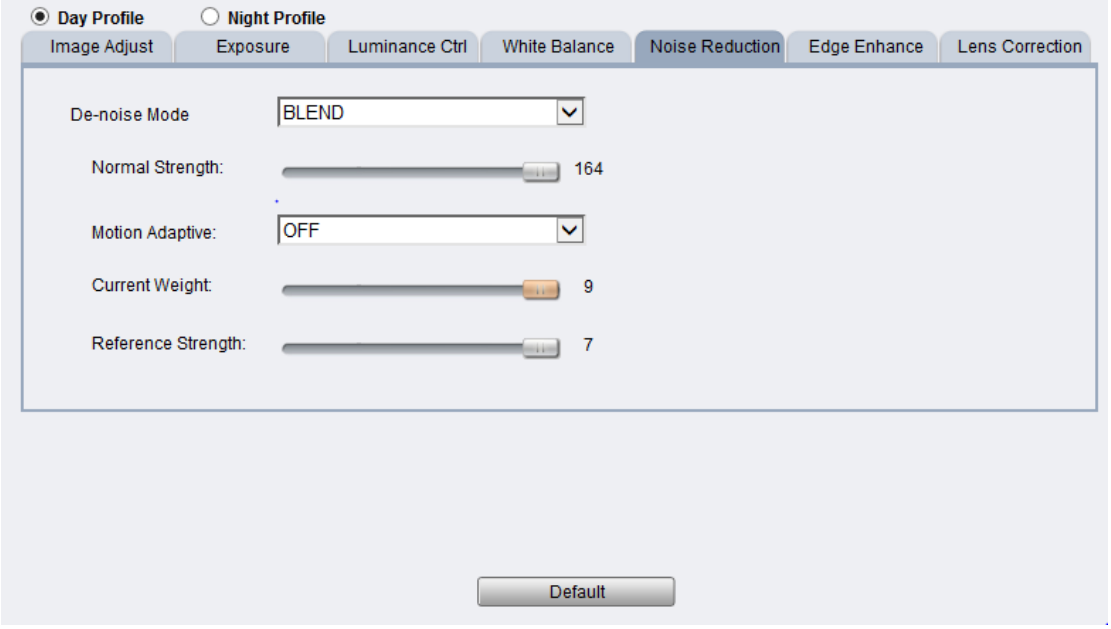
## White Balance




This setting allows users to choose the color balancing method used.

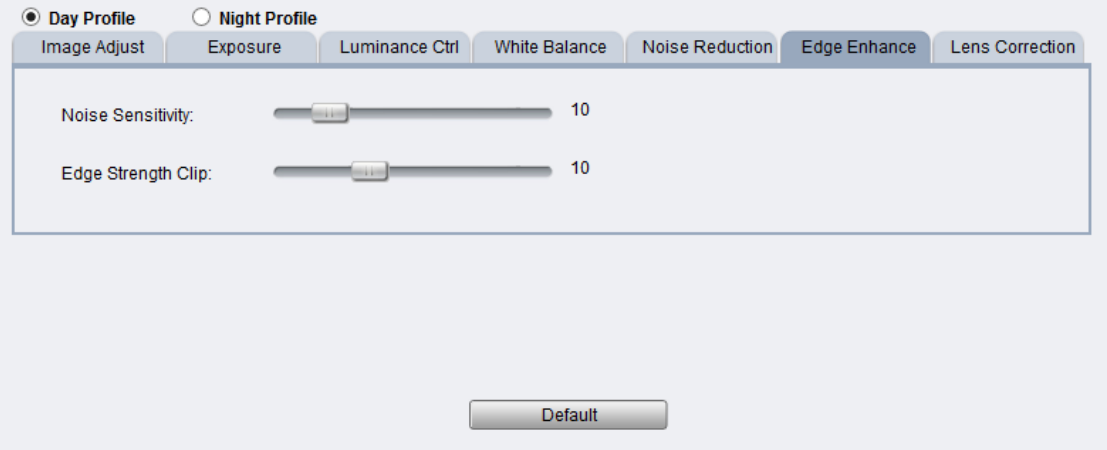
- **AWB** - Automatically chooses white level.
- **MWB** - The user must specify the red and blue gain levels to achieve the correct white level.
  - **R Gain** - The gain applied to the red video channel.
  - **B Gain** - The gain applied to the blue video channel.

## Noise Reduction



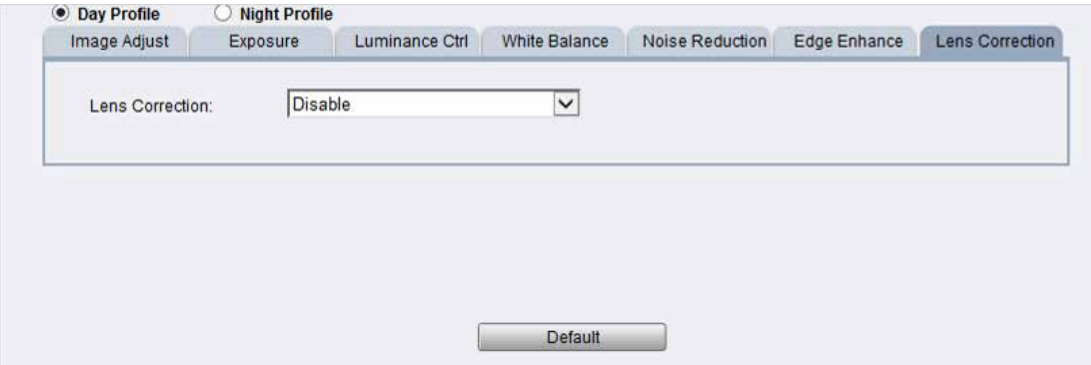

- **De-noise Mode** – Removes video noises.
  - **OFF** - Can be set to disable this functionality
  - **2DNR** – Reduces noises.
  - **3DNR** – Reduces noises in low light conditions and even with moving objects.
  - **BLEND** – Blends 2DNR and 3DNR to create clear images.
- **Normal Strength** – Ranges from 0 to 164.
- **Motion Adaptive** – Sets as ON to Deinterlace
- **Current Weight** – Ranges from 0 to 9.
- **Reference Strength** –Ranges from 0 to 7.

### Edge Enhance



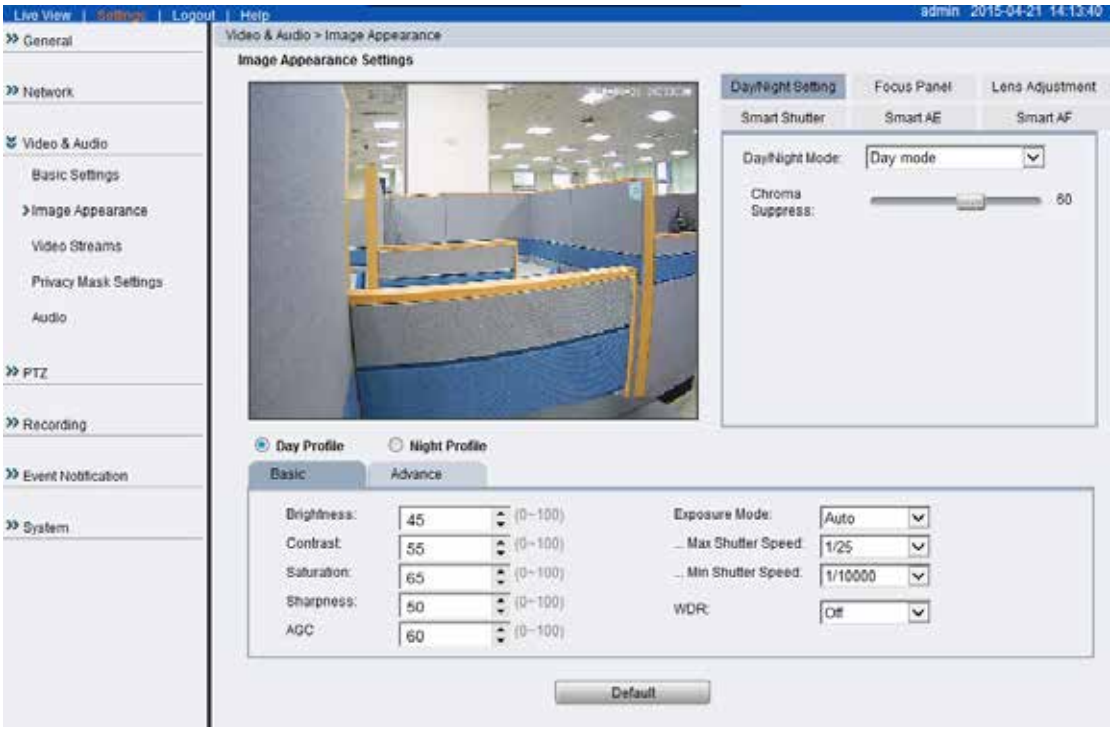

- **Noise Sensitivity** – Senses the noise**.**
- **Edge Strength Clip** – Enhances the edges of the image.

### Lens Correction




Correct the barrel distortions and pincushion distortions of images while using wide-angle lenses.

## Image Appearance
## (for CAM4371HEM/4371HEV, CAM4471HEM/4471HEV, CAM4411S2/S3/S4/S6)



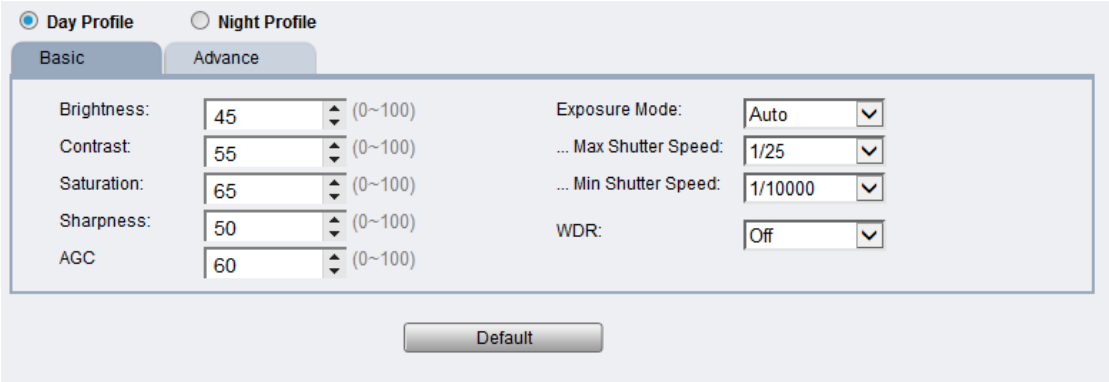

### Day/Night Setting

- **Day/Night Mode** - Sets the day (color) and night (black and white, IR cut filter off when applicable.) Night mode sacrifices color information to produce a clear image quality.
  - **Auto mode**- The camera will determine when to switch.
  - **Day mode** - Forces day mode.
    - **Chroma Suppress** - Reduces the false color phenomena.
  - **Night mode** - Forces night mode.
  - **Schedule for day mode** - Allows users to set a day/night transition time.
    - **From** – Set the starting time for the scheduled day mode.
    - **To** – Set the ending time for the scheduled day mode.
  - **Digital Input –**
    - **High Profile –** Switch to Day or Night mode when the DI status is high.

§ **Low Profile** -Switch to Day or Night mode when the DI status is low.

### Day Profile/Night Profile

Selecting the Day Profile or the Night Profile according to the Day/Night Setting you have set: Day Profile for Day Setting and Night Profile for Night Setting. The parameters deal with the image lighting and color. The adjustments will be shown in the preview window. Use the **Default** button to have the settings back to the defaults.




### Basic

- **Brightness** - Adjusts the perceived light intensity of the image.

**Note:** In certain situations, the sensor may experience banding issues. In these cases, please raise the brightness.

- **Contrast –** Adjusts the overall difference in the light vs dark areas.
- **Saturation –** Adjusts the colorfulness of a color relative to its own brightness.
- **Sharpness** - Adjusts the edge contrast of the image.
- **AGC** - Automatic gain control (AGC) adjusts the video gain level to a variety of inputs. This setting provides a baseline value for the AGC. Values higher than this will be darkened, and values that are lower will be brightened. AGC should be adjusted so that the area of interest is best lit.
- **Exposure Mode** –Sets how the camera captures images. Longer shutter times allow more light into the sensor, resulting in a cleaner picture, however longer shutter times can result in motion blur.
  - **Fixed**

- **Auto** –The camera will automatically change the shutter speed and gain balance between image quality and frame rate when there is insufficient light to preserve both.

- **Shutter Speed** –Can be selected from 1/1 to 1/10000.
- **WDR** – Attempts to preserve detail at contrast extremes and handles multiple exposure zones to give both the highlight and low light areas a proper exposure.
  - **Off** – Disable this functionality.
  - **DWDR** - Specifies the DWDR correction level manually, ranging from 1 (least) to 9 (most) or automatically.
  - **True WDR** – the shutter speed by average
    - HDR level – Auto / Low / Middle / High
  - **BLC** – Backlight Compensation allows the camera to adjust the exposure of the entire image to properly expose the subject in the foreground.

### Advanced

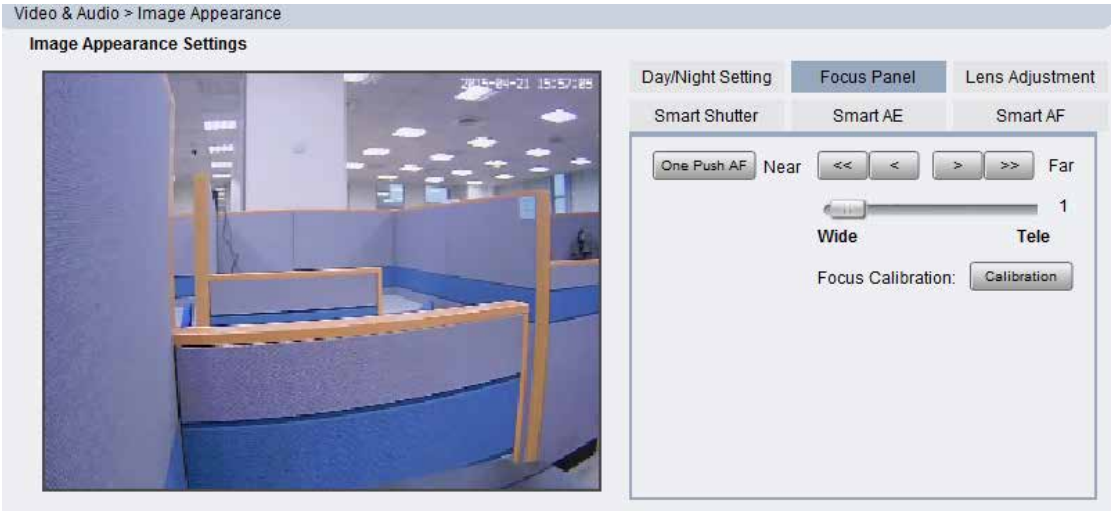
- **Gamma Mode**– Adjusts the color error of the image.
  - **Default -** Automatically chooses gamma level.
  - **User-defined -** The user must specify the gamma level
    - 0.30-1.00.
- **Target Luminance -** Adjusts the lightness of the image, 0-255.
- **Dead Pixel Correction -** Investigates and corrects dead pixel, 0-255.
- **De-noise Mode -** Removes video noises.
  - **OFF** - Can be set to disable this functionality
  - **2D** – Reduces noises.
    - **Manual**
    - **Auto**
  - **3D** – Reduces noises in low light conditions and even with moving objects.
    - **Low**
    - **Middle**

- § **High**

- **Whit Balance:** This setting allows users to choose the color balancing method used.
  - **AWB -** Automatically chooses white level.
  - **MWB -** The user must specify the red and blue gain levels to achieve the correct white level.
    - § **R Gain -** The gain applied to the red video channel.
    - § **G Gain –** The gain applied to the green video channel.
    - § **B Gain** - The gain applied to the blue video channel.
- **Smart IR – A**djusts the shutter time automatically to make the image clear without overexposures.
  - **Off**
  - **On**

### Focus Panel

The parameters deal with the focus. The adjustments will be shown in the preview window.




**One Push AF:** Auto Focus can be achieved by pressing this button.

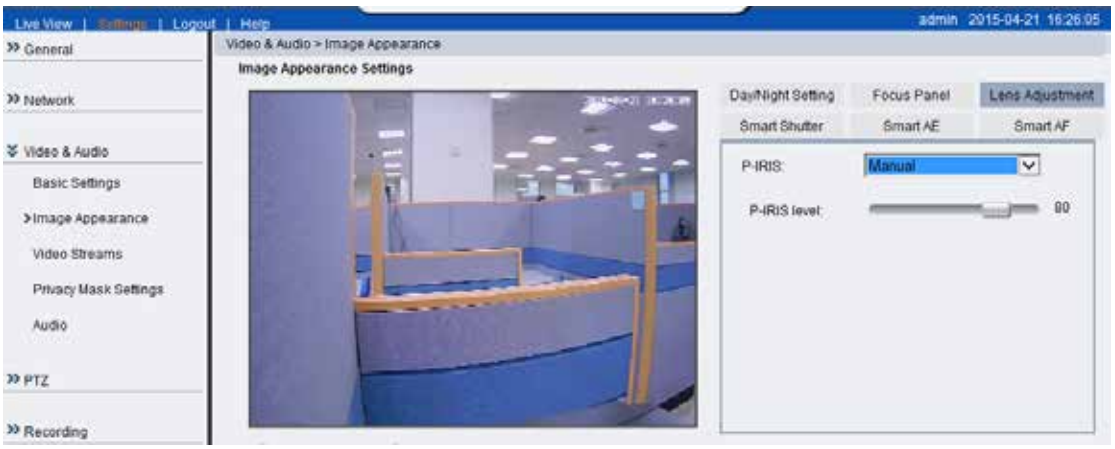
**Near / Far:** Change the depth of field by adjusting the **Near** and **Far** steps.

**Wide:** Offers expanded visual perspective.

**Tele:** Normalizes the size and distance difference between near and far objects, and can make the depth of field appear shallower.

**Calibration**: Calibrates the focus.

## Lens Adjustment




- **P-IRIS:** Can be adjusted Manually or Automatically.
  - **Manually**
    - **P-IRIS Level:** 0-100.
  - **Auto**
    - **P-IRIS Sensitivity:** 0-100.
    - **P-IRIS Level:** F11-F1.4

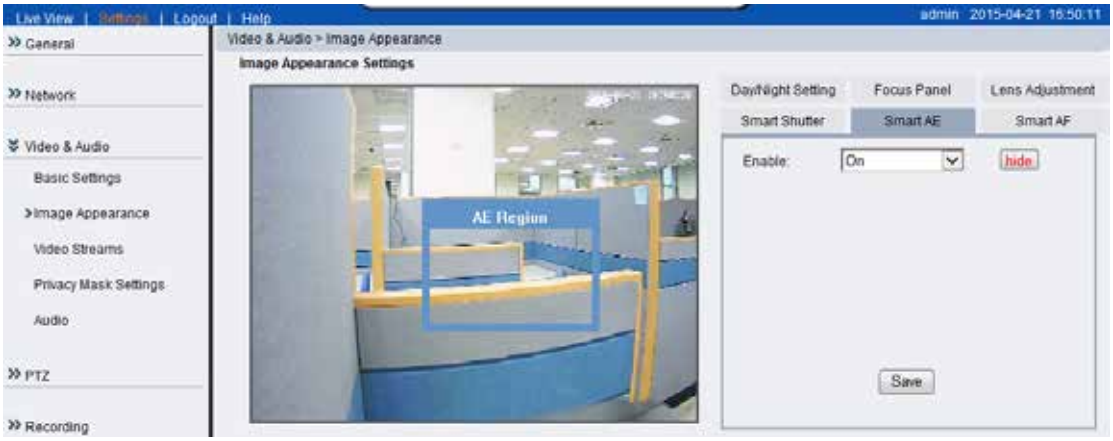
## Smart Shutter

This functionality is used for capturing precise images of fast-moving objects by adjusting the shutter speed automatically to avoid captured images going blurry or dragging using the conventional shutter settings.

- **Enable:** On / Off this functionality.
  - **Hide/Show:** show/hide the enabled smart shutter window.
  - **Window:** up to 3 windows can be set.

## Smart AE

Smart AE (Smart Auto Exposure): The conventional cameras adjust the general exposure and allow either underexposed shadows or overexposed highlights. The Smart AE automatically adjusts the exposure based on a targeted area to bring out the proper exposure for the overall image.




- **Enable:** On / Off this functionality.
  - **Hide/Show:** show/hide the enabled smart shutter window.
  - **AE Region Window:** Move the window to the area where you'd like to set as a target area.

## Smart AF

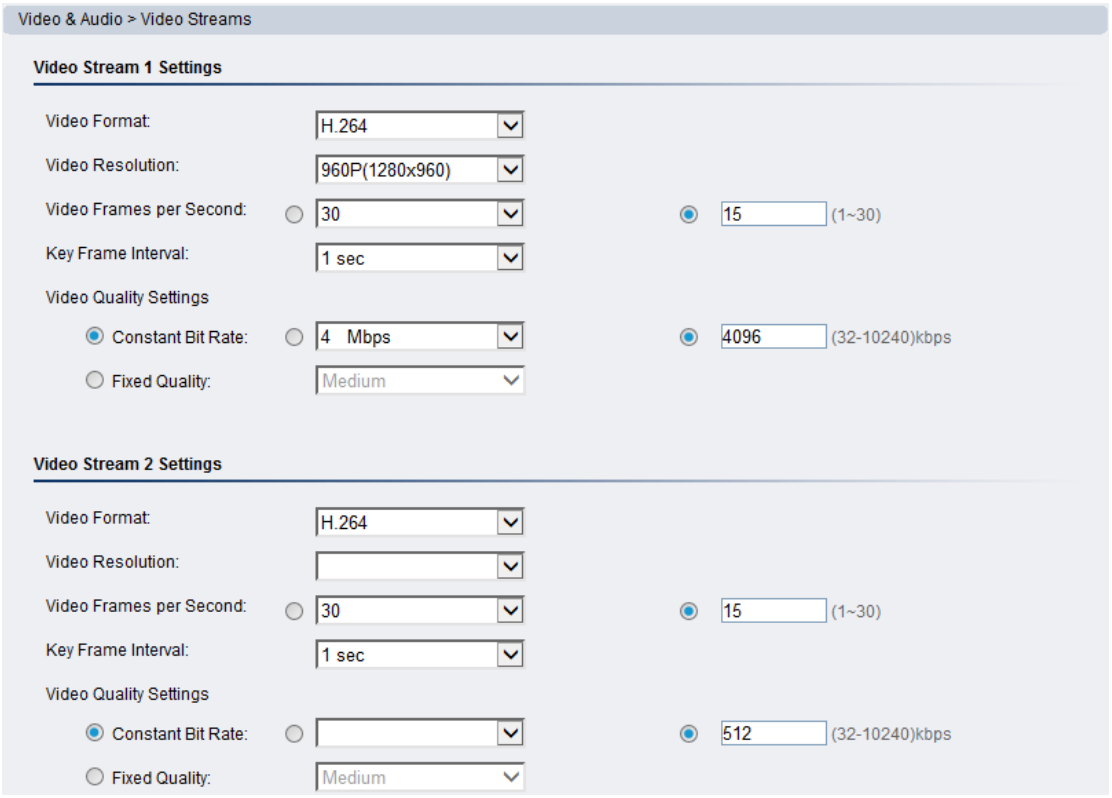
The Smart AF allows users to apply auto focus on a targeted area, showing the clear image of the region that really matters.

- **Enable:** On / Off this functionality.
  - **Hide/Show:** show/hide the enabled smart shutter window.
  - **AF Region Window:** Move the window to the area where you'd like to set as a target area.

## Video Streams

The configuration for video streams, including resolution, frame rate and image quality parameters can be found under **Video & Audio > Video Streams**.

The page is split into settings for 2 streams. Common settings are:

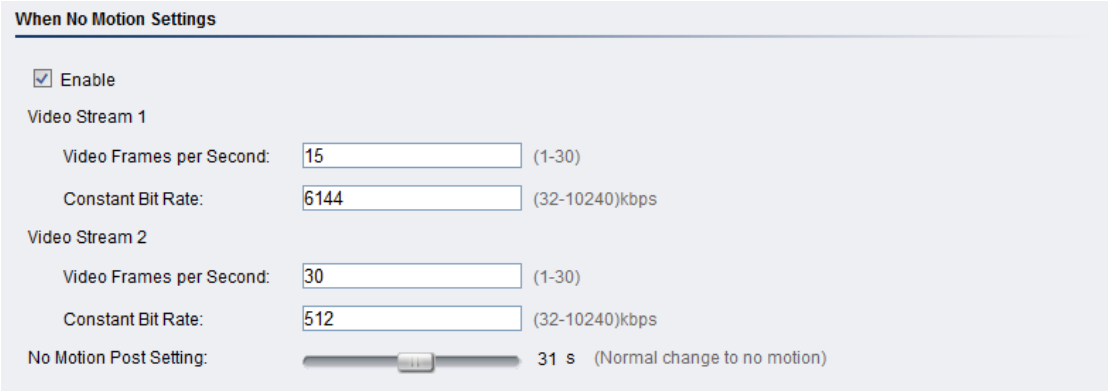



- **Video format** - The compression format for the video stream.
  - **H.264** - Provides the best compression, and clear picture, but is processor intensive.
  - **MPEG4** - Provides more compression that MJPEG, but loses picture quality.
  - **MJPEG** - Provides minimal compression, with the best picture quality. Each frame is stored as a discrete JPEG. This option is only available in Stream 1.
- **Video Resolution** - Sets the resolution of the video output. The following options are available: QSXGA (2560x1920, Stream 1 only), QXGA (2048x1536, Stream 1 only), 1080P (1920 x 1080, Stream 1 only), SXGA (1280 x 1024, Stream 1 only), 960P (1280x960, Stream 1 only), 720P (1280 x 720), D1 (720x480), VGA (640x480), QVGA (320x240, Stream 2 only).
- **Video Frames per Second**- Sets the number of frames per second. 1, 3, 5, 10, 15, 20, 25, 30 FPS are possible values. You can also choose to type in the values you want (the range is from 1~30).

- **Key Frame Interval** - Sets the period between minimally compressed recovery frames that don't require other video frames to decode. 1/4s, 1/2s, 1s, 2s, 3s, and 4s are possible values.
- **Video Quality Settings** - Sets the quality of the video image.
  - **Constant Bit Rate** - In this mode, the camera will maintain a constant bit rate output, regardless of video quality. Bit rates available are dependent on the video resolution chosen, and range from 256 kbps to 6 Mbps. You can also choose to type in the values you want (the range is from 32~10240).
  - **Fixed quality** - In this mode, the camera will attempt to maintain a constant quality output, up to a maximum bandwidth of 10 Mbps.

**Settings can be further defined when no motions occur.**

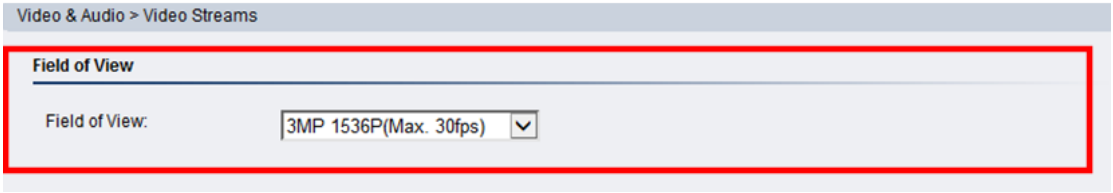
Enable this option to adjust the Video Frames, Constant Bit Rate for Video Stream 1 and 2.



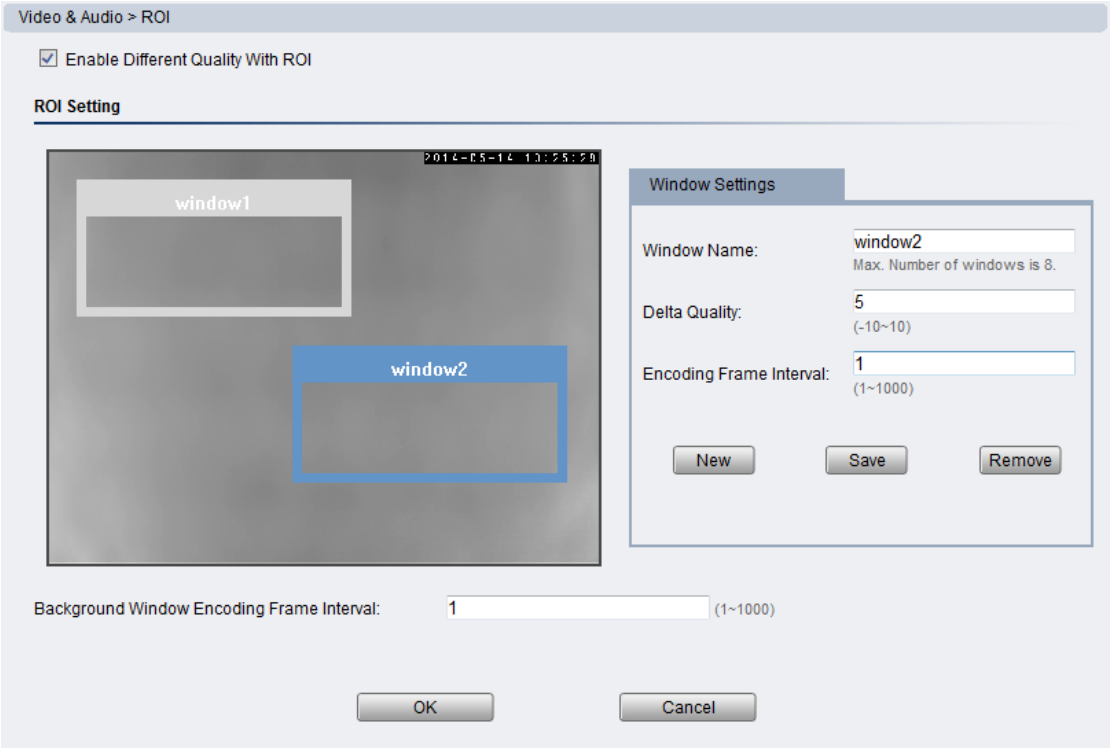
### Video Streams (for CAM4471V/4471M/4471MP, CAM4571M/4571MP/4571VP, CAM4471HEM/4471HEV)

For these models, there is one more option, Field of View (FoV).

FoV can be defined as the width and height of a scene to be monitored. Different Fields of View are available for selection, 3MP 1536P (Max. 30fps), 5MP 1920P (Max. 14fps, for CAM4571 only) and Full HD 1080P (Max. 60fps).



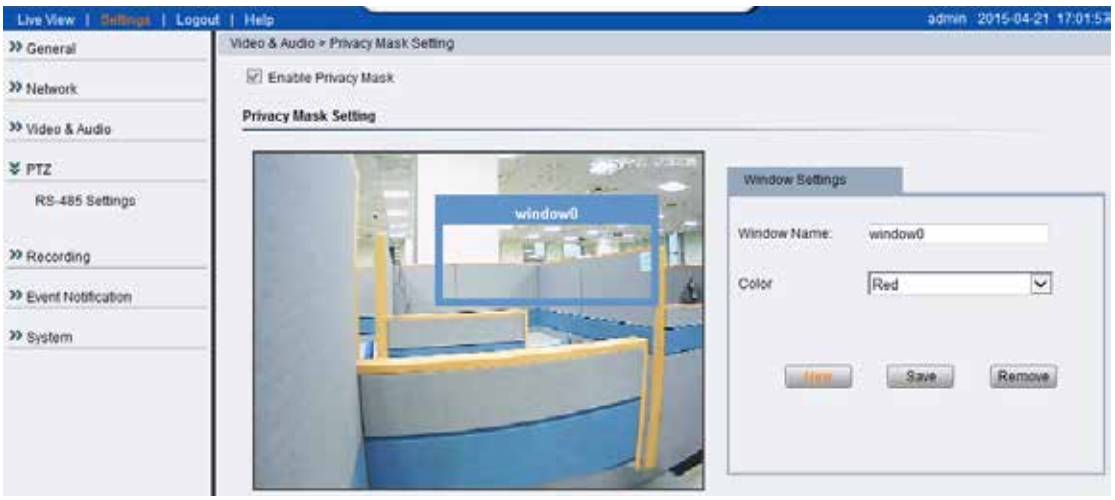
## ROI Settings (for certain models only)




Use the Region of Interest (ROI) to execute different functions in one image.

- **Window Settings**
  - **Window Name -** Specify a name for a different window.
  - **Delta Quality** – Can be selected from -10 to +10.
  - **Encoding Frame interval** – Can be selected from 1 to 1000.
- **Background Window Encoding Frame Interval** – Can be selected from 1 to 1000.

## Privacy Mask Setting




Use **New** button to create privacy mask on the video, up to 3 masks can be created. The window name and the mask color can be further defined.

## Audio Settings

The audio settings, under **Video & Audio > Audio Settings**, contain parameters dealing with audio coming from the cameras built in mic, or an external microphone.

- **Mute** - Selects whether or not to mute the incoming audio from the camera.
- **Audio In** - Selects the source for the camera audio feed. **Line In,** an external source connected to the camera's line-in port, is the only option.

**Note:** For models with built-in microphone, Microphone option can be selected in *Line Selection*.

- **Audio Codec** – G.711 U-law, G.711 A-law, and ADPCM are methods for digitally encoding audio signals. Only one bit rate, 32 Kbps, is currently supported. Audio will be encoded at this bit rate.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

# PTZ

PTZ functionality is not supported for CAM4xxx series.

# Recording

The Recording menu, **Settings > Recording**, deals with recording settings and managing recorded video files.

## Basic Recording Settings (for CAM4211/4221)

Recording basic settings, **Recording > Basic Recording Settings** are parameters which deal with the recording location and scheduling.

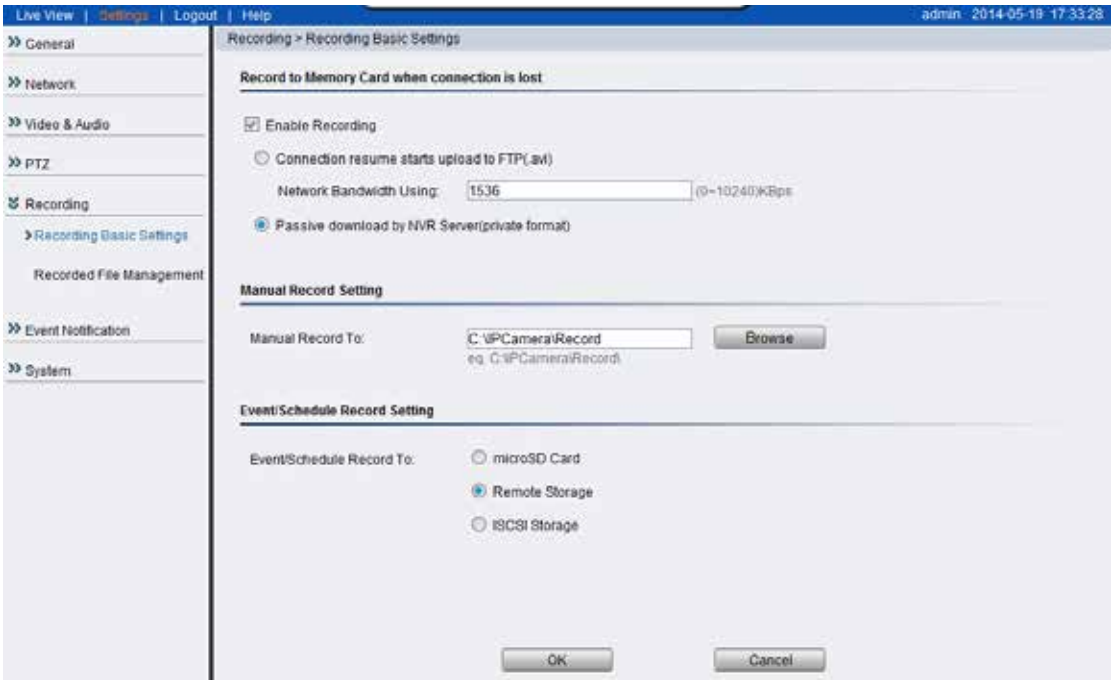
The following parameters can be configured within this menu:

- **Manual Record To** - Defines the path for manual recording. Screenshots and user recordings will be saved in this location.
- **Event/Schedule Record To** - Allows the user to set the destination for event or scheduled recording. Event and scheduled recording settings are found under **Settings> Event Notification.**

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## Recording Basic Settings

Recording basic settings, **Recording > Recording Basic Settings** are parameters which deal with the recording location and scheduling.




The following parameters can be configured within this menu:

- **Record to Memory Card when connection is lost**

  When enabled, video will automatically be recorded onto the microSD card if the network connection is lost. When a network connection is re-established, recording will switch back to the remote destination. If this feature is turned off, there will be no recording at all when if network connection is lost.

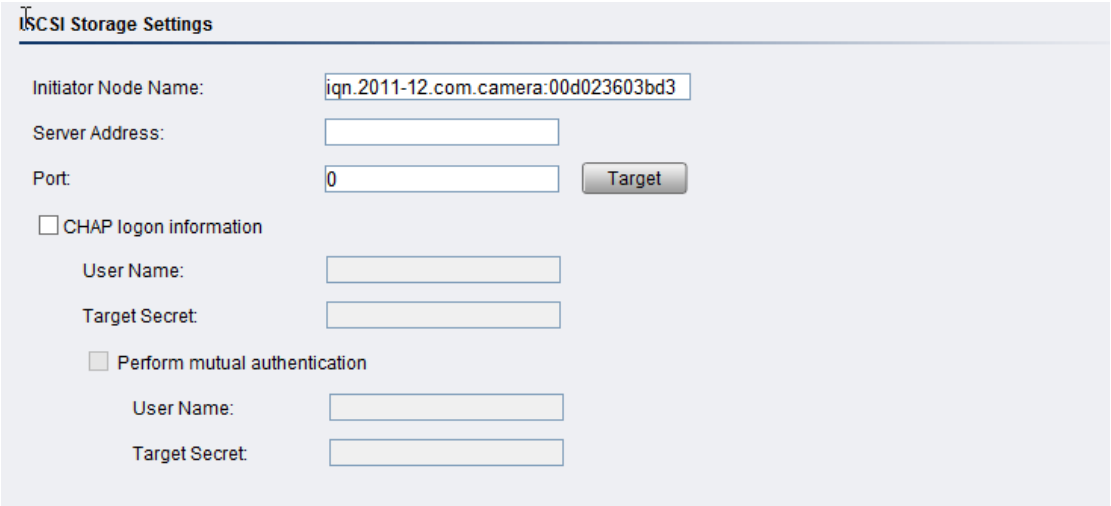
  - **Enable Recording** – Tick it if you want the video to be recorded on to the micro SD card.
  - **Connection Resume Send to FTP** - Tick **Enable Recording** if you want the video to be uploaded to FTP automatically after the network connection is recovered.

    **Network Bandwidth Using** – The speed limitation of the FTP.
  - **Passive download by NVR Server (private format)**

- **Manual Record Setting**

  - **Manual Record To** - Defines the path for manual recording.
  - Screenshots and image recordings will be saved in this location.

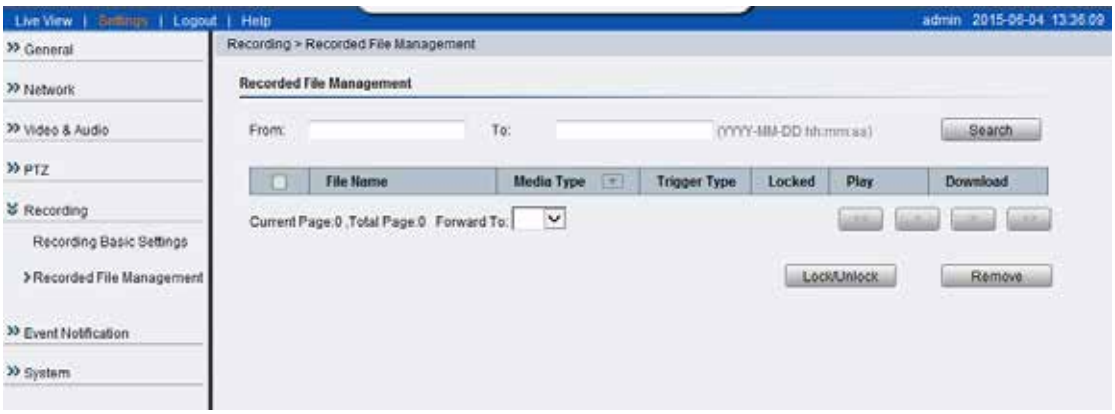
- **Event/Schedule Record Setting -** Allows users to set the destination for event or scheduled recording.
- microSD Card
- Remote Storage
- ISCSI Storage - Before selecting the ISCSI Storage as your recording destination, settings of Event Server under the Event Notification should be done to enable the ISCSI Storage. Go to *Event Notification* > *Event Server* to set the ISCSI Storage Settings.




Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## Recorded File Management

This section, located at **Recording > Video File Management** allows users to manage videos recorded on the microSD cards.




## Locating Video Files

To locate video files from a specific time frame, enter a begin and end time in the **From:** and **To:** fields below, and click **Search**.

Each video file will have an entry containing:

- Time - The time the video was recorded, also the filename of the entry: YYYY_MM_DD_HH_MM_SS.avi
- Media Type - The encoding/compression method
- Trigger Type - What type of action triggered this recording eg. if it was alarm recording or scheduled recording.
- Locked - The lock state of the alarm.

The video records located will be split into pages. The information on these

- **<<** - Click to go to the first page of the recorded files list.
- **<** - Click to go to the previous page of the recorded files list.
- **>** - Click to go to the next page of the recorded files list.
- **>>** - Click to go to the last page of the recorded files list.
- **Forward To:** - This dropdown can be used to skip to a page number.

You may also narrow the entries displayed by clicking on the **Media Type** column. This will give you the option of choosing *All, H264, MPEG4,* or *MJPEG* types. The system will only show video files of the format selected.

### Managing Video Files

Once you have located the video files of interest you may select them by checking the box in the leftmost column of the entry. You can also select all displayed entries by checking the box in the header row.

There will be two buttons in each entry:

- **Play** - Plays the video file in local helper application.
- **Download** - Downloads video files. Select one or more video files and click **Download**; Choose location to save the video file(s) onto your local PC.

Other actions that you can perform:

- **Lock/Unlock** - Locks/Unlocks video files. Locked files cannot be removed. Select one or multiple video files and click Lock/Unlock. When a file is locked, the Locked status will display yes.
- **Remove** - Manually deletes stored video files. Select one or more video files and click **Remove** to delete the file(s).

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

**Note:** The video files shown in Recorded File Management are files stored in the microSD card. You can also record live video by clicking the record button in the Live View screen, which will be stored directly into your local computer, and are not managed by this function. Please refer to the section on **Manual Record** for more information on this functionality.

# Event Notification

Event Notification settings, found under **Settings > Event Notification**, deal with the event detection, scheduled recording, and notification abilities of the camera.

## Event Server

The event server, which can be configured under **Event Notification > Event Server**, is the communications center of the camera. This section deals with the configuration of E-mail and FTP notifications, HTTP and TCP triggers, NAS settings and ISCSI Storage settings.

### Email Settings

Email settings are used to configure e-mail notifications.

- **Sender Email Address** – The return e-mail address for notifications. This should be your notification address.
- **Recipient email address –** The e-mail address notification emails will be sent to. Only one email address can be entered.
- **Server address** - The IP or address of the e-mail server.
- **User Name** - The user name of the notifications e-mail account.
- **Password** - The password of the e-mail account.
- **SMTP Server Port** - the SMTP port of the email server; Default 25.
- **Test** - Click this button to send a test email. E-mails will only be sent if all parameters are entered correctly.

### FTP Settings

FTP settings are used to configure recording to a remote location via the file transfer protocol.

- **Server Address** - The address of the FTP server.
- **FTP Server Port** - The port number of the FTP server; Default 21.
- **User Name** - The user name of the FTP account.
- **Password** - The password of the FTP account.
- **FTP Folder Name** - The name of the folder on the FTP site which video files will be stored in.

### Http Servers

- **URL** - The address.
- **Port** – The port number for the web service. It is usually 80.
- **User Name** - The username of the camera. **The default user name is admin**.
- **Password** - The password of the camera. **The default password is admin**.

### TCP Servers

- **IP Address** - The address of the TCP server.
- **Port** – The port number of the TCP server.

### NAS Settings

NAS settings are used to configure recording to network attached storage.

- **Server Address** - The address of the NAS server.
- **User Name** - The user name of the NAS account.
- **Password** - The password of the NAS account.
- **Folder Name** - The name of the CIFS account folder on the server.

### ISCSI Storage Settings

- **Initiator Node Name** – Your Internet Small Computer System Interface's name.
- **Server Address** – Your server address.
- **Port**
    - **CHAP logon information**

      **User Name** – Your user name.

      **Target Secret** – Created to manage the connections between an iSCSI device and the servers that need to access it.

        - **Perform mutual authentication** - Two parties authenticating each other suitably.

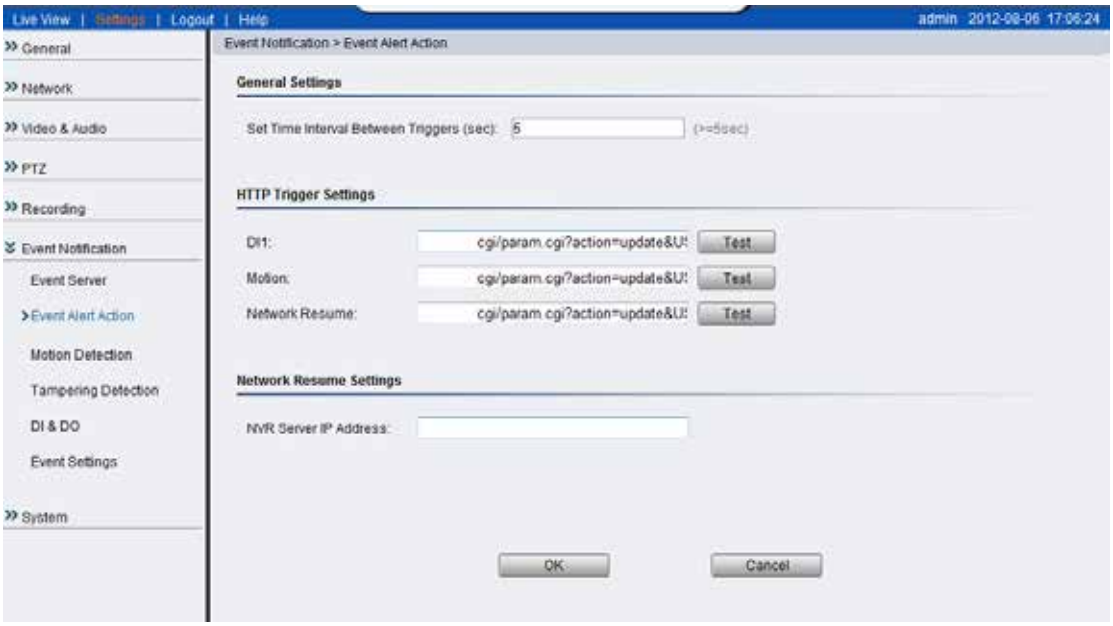
          **User Name** – Your user name.

          **Target Secret** – Defines the portals (IP addresses) that can be used to connect to the iSCSI device, as well as the security settings that the iSCSI device requires to authenticate the servers that are requesting access to its resources.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## Event Alert Action

**Note:** CAM 42XX series do not support Event Alert Action.




### General Settings

- **Set Time Interval between Triggers (sec)**

### HTTP Trigger Settings

Set the CGI rule for HTTP triggers.

- **DI1**– /surveon-cgi/param.cgi?action=update&USER=admin&PWD=admin&System.LiveViewPor=6002.
- **DI2** – /surveon-cgi/param.cgi?action=update&USER=admin&PWD=admin&System.LiveViewPor=6002.
- **Network Resume** –

  /surveon-cgi/param.cgi?action=update&USER=admin&PWD=admin&System.LiveViewPor=6002.

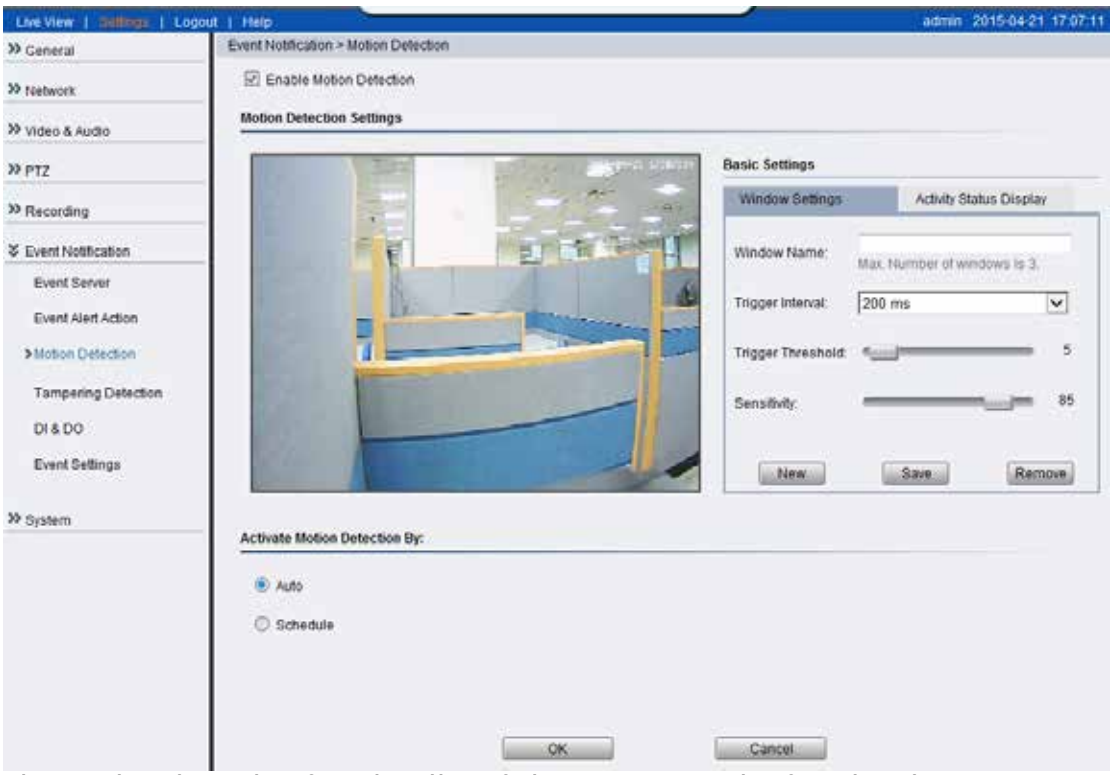
### Network Resume Settings

- **NVR Server IP Address –** The IP address of the NVR server.

  The system will start to ping this IP for three times, and if the results are different, the network connection will be defined as lost. The video will be recorded automatically to the micro SD card, and when the connection is recovered, it will be uploaded to the FTP.

**Note:** Please refer to Recording Basic Settings section for more details.

## Motion Detection




The motion detection functionality of the camera can be found under **Event Notification> Motion Detection**.

### Window Settings

Motion detection is activated by checking the **Enable Motion Detection** box.

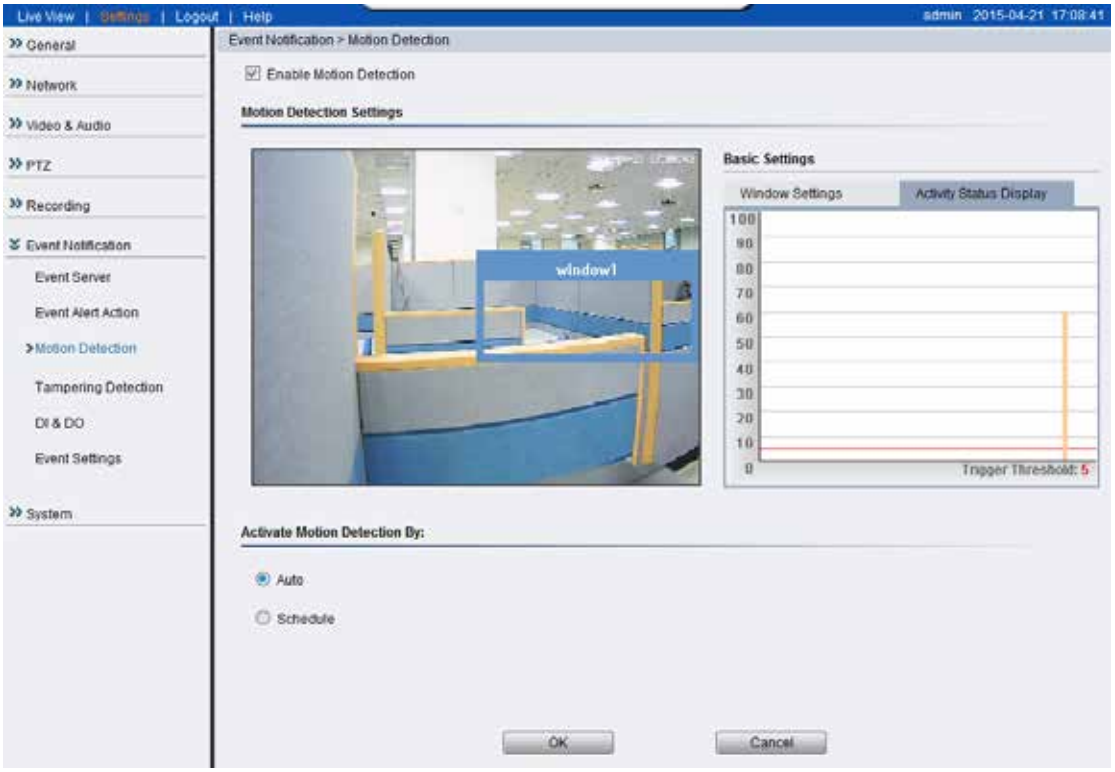
Click the *Window Settings* tab to enter the window configuration, and click **New** to add a new detection window. A maximum of 3 motion detection windows can be added. Each new window will be created with a default name *Window N*, where *N* is the number of the window. After creating the window, clicking it will select the window. You can drag and resize the window using your mouse. You can also change the following parameters:

- **Window Name** - Tthe name of the motion detection window.
- **Trigger Interval** - The time interval between motion triggers. Options available are: 200 ms , 400 ms, 800 ms, and 1000 ms.
- **Trigger Threshold** - The percentage change in the window before a motion alarm is triggered.
- **Sensitivity** - The sensitivity of the motion box.

Click **Save** to save all settings. Settings of existing windows can also be changed by selecting the window and changing the settings. To delete a window, select a window in and click **Remove**.

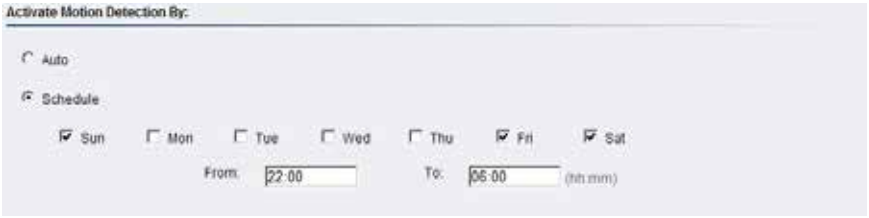
### Activity Status Display

The *Activity Status Display* tab displays the amount of motion detected in a selected window. By raising the **Sensitivity** of the window the motion values for a given motion, which are in shown in yellow, will be higher. When the motion value reaches or crosses the **Trigger Threshold,** denoted by the red line, a motion event will be triggered. Use Activity Status Display to check if the setting of threshold is reasonable. For smaller motions below the set number, the motions won't trigger alarm. Motion alarm handling and notifications can be configured under Event Settings.

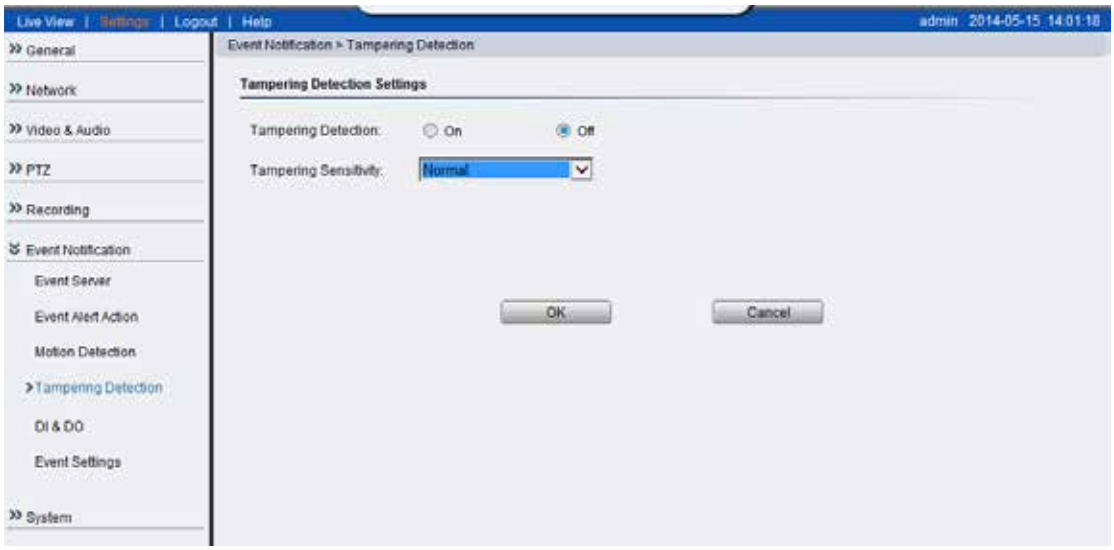


### Activate Motion Detection By: Auto/Schedule

- **Auto –** As long as **Enable Motion Detection** is checked, an event is triggered.
- **Schedule –** Selecting this option allows to manually schedule the times motion detection will be active. Select the days of the week that Motion Detection is active by checking the corresponding boxes, and fill in a start time and end time for motion detection in the **From:** and **To:** boxes.



## Tampering Detection




Tampering detection is similar to motion detection in that it detects where there is a sudden unexpected change in the whole camera view. Parameters for this feature are found under **Event Notification> Tampering Detection**.

Tampering alarm handling and notifications can be configured under Event Settings.

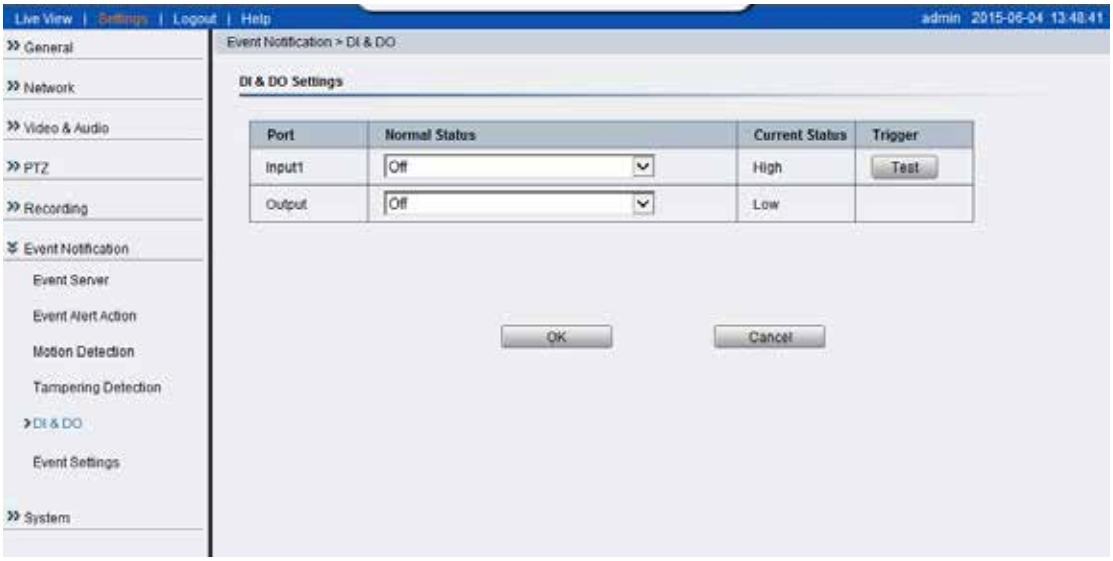
The tempering detection parameters include:

- **Tampering Detection** - Turns tampering detection on or off.
- **Tampering Sensitivity** - Sets the sensitivity of Tampering Detection. Options are *Very Low, Low, Normal, High, and Highest.* Higher sensitivities can detect more tampering attempts, but also increase the chances that the camera will produce a false alarm.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## DI & DO

Digital Input (DI) and Digital Output (DO) stand are used for event triggering. The camera has 1 set of DO and DI ports. Settings for these ports can be found under **Event Notification > DI & DO**. Conditions for DI and DO triggering, as well as notifications for can be set under Event Settings.

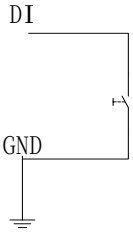



## Digital Input

The two inputs are listed as Input1 and connect to external circuits such as window break detectors. These inputs can be tested by clicking the **Test** button in the input entry.

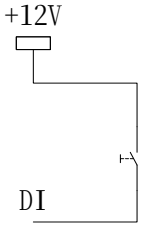
Each input has a **Normal Status**:

- **Normal Open** – the DI requires a low voltage input, with the following configuration.




It is triggered when it does not receive this input.

- **Normal Close** – the DI requires a high voltage input (+12V), with the following configuration.




It is triggered when it does not receive this input.

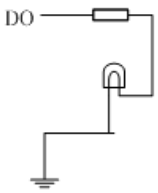
- **Off** - DI inputs are closed at all times. The camera will not respond to any signals on this DI.

### Digital Output

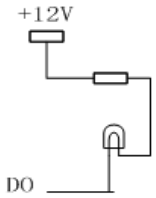
The camera can also be configured to send signals through the digital output.

Each output has a **Normal Status**:

- **High** – DO outputs a high voltage when triggered, and is connected to the output circuit in the following manner:




- **Low** - DO acts as a ground when triggered, and is connected to the output circuit in the following manner:

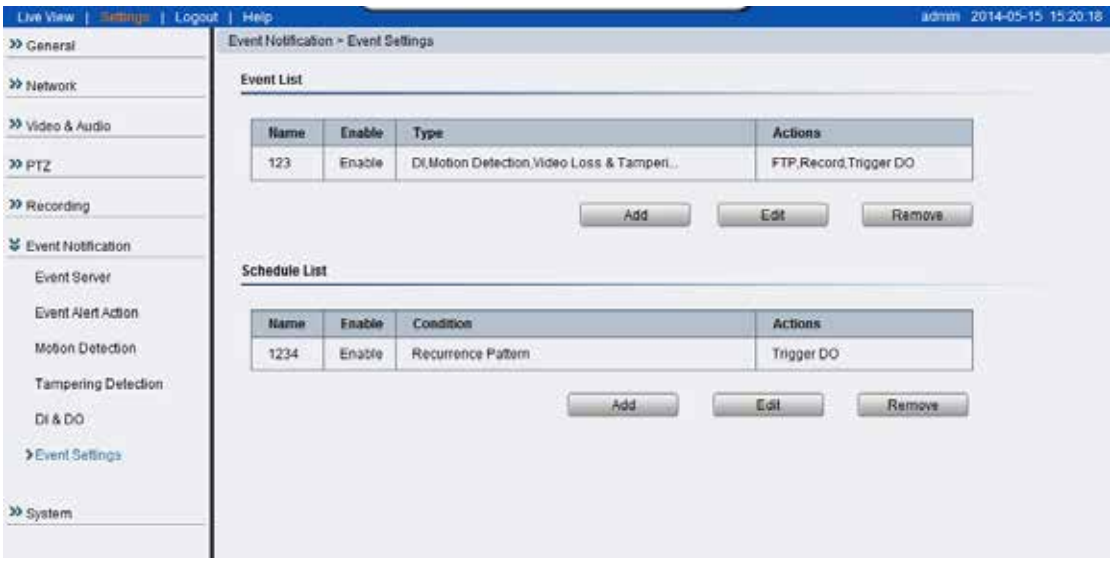



- Off - Closes DO output; no signals will be sent.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## Event Settings

Event settings deal with alarm handling and notification, as well as feature scheduling. These settings can be found under the **Event Notification > Event Settings** menu.



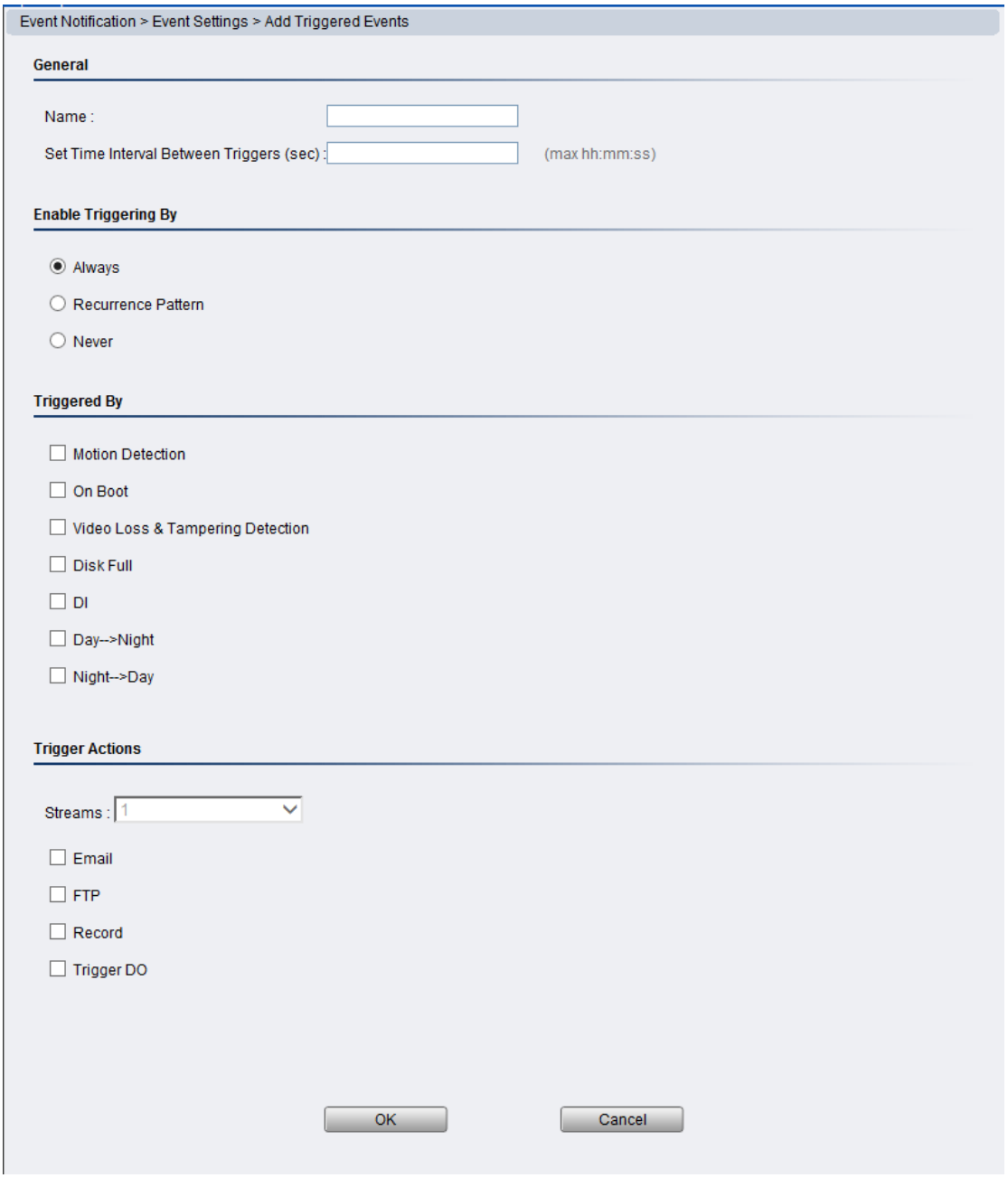

The event handler is rule based. There are lists for both two types of rules:

- **Event List** – Contains rules based on triggered events such as motion detection or DI triggers.
- **Schedule List** – Contains time-based rules.

Each rule has an action list. When the conditions for rule are met, the actions specified by the rule are carried out. Users may perform the following actions in both Event and Schedule lists:

- **Add –** Clicking on the **Add** button adds a new rule to a list.
- **Edit –** A selected rule may be edited by clicking on the **Edit** button.
- **Remove –** A selected rule may be deleted by clicking on the **Remove** button.

## Adding/Editing an Event Rule




The Add and Edit screens contain the following triggering actions:

**Note:** If editing a rule that has not been triggered, the rule will not be triggered until editing is complete. If the rule is triggered, any changes will not be applied until the current trigger is resolved.

### General

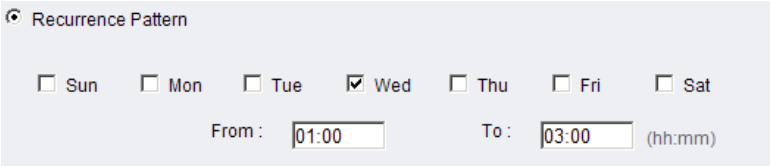
The following general fields should be filled in:

- **Name** - Specifies the name of the Event.
- **Set Time Interval Between Triggers** - The time frame in which a subsequent trigger of the same event will be ignored (max hh:mm:ss).

### Enable Triggering By

The next step is to specify the frequency of trigger response. 3 options are available:

- **Always** - The default setting; Triggers event when conditions are met.
- **Recurrence Pattern** - Enables triggering only if conditions are met during a specified time period. To specify the period, select the days of the week that the trigger is active by checking the corresponding boxes, and fill in a start time and end time for motion detection in the **From:** and **To:** boxes.




- **Never** – The event is never triggered.

### Triggered By

After the frequency is selected, triggering conditions can be set. Multiple conditions can be set at once. Available options include:

- **Motion Detection** - Trigger when motion is detected.
  - **In Window** – Specifies the detection window that will trigger the event.

  Please refer to the section on Motion Detection for details.
- **On Boot** - Trigger when camera reboots.
- **Video Loss & Tampering Detection** - Trigger when video signal is lost or tampering is detected. Please refer to the section on Tampering Detection for more detail.
- **Disk Full** - Trigger when the SD disk installed in the camera is full.

- **DI** - Trigger when a DI trigger occurs. For more information please refer to the section on DI & DO.
- **Day à Night** – Trigger when day turns to night.
- **Night à Day** – Trigger when night turns to day.

### When Triggered

The actions to take when trigger conditions are met are configured here.

The following options are available:

- **Streams** – Selects the stream from which the snapshot or recording will be obtained.
- **Email** – E-mails notifications to the email address specified in the Event Server settings. If this option is chosen, fill in the following:
  - **Subject** - The subject line of the notification e-mail.
  - **Additional Information** - Contents of the notification e-mail.
  - **Snapshot/Video** - Choose to send a snapshot or video attachment from 5s before to 30s after the trigger.
- **FTP** - uploads a snapshot or video clip to a FTP location specified in the Event Server settings.
  - **Snapshot/Video** - Choose to upload a snapshot or video file from 5 seconds before to 30 seconds after the trigger. Files are sent as attachments.

- **Record** - Records video to the server specified in the Event Server settings and the microSD card when triggered. The video clip stored on both remote storage server and local storage is a video file 35 seconds in length (5 seconds before and 30 seconds after the trigger)
- **Trigger DO** –A Digital output signal is sent when triggered.
    - **Trigger Duration** - **The** length of time that the DO signal is sent. Options are 1, 2, 5, 10, 20 or 30 seconds. For more information please refer to the section on DI & DO.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

### Adding/Editing a Scheduled Rule

The Add and Edit screens contain the following actions:

**Note:** If editing a rule that has not been triggered, the rule will not be triggered after until after editing is complete. If the rule is triggered, any changes will not be applied until the current trigger is resolved.

#### General

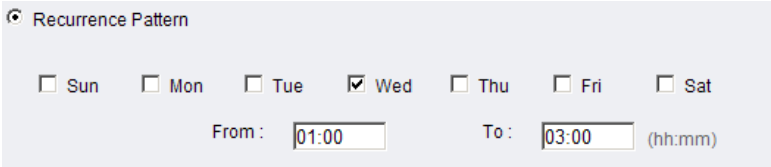
The following general fields should be filled in:

- **Name** - Specifies the name of the Event.
- **Set Time Interval (When Activated)** - The trigger time of the event (00:00 to 23:59).

### Enable Triggering By

The next step is to specify the frequency of trigger response. 3 options are available:

- **Always** - The default setting; Triggers event when conditions are met.
- **Recurrence Pattern** - Enables triggering only if conditions are met during a specified time period. To specify the period, select the days of the week that the trigger is active by checking the corresponding boxes, and fill in a start time and end time for motion detection in the **From:** and **To:** boxes.




- **Never** – The event is never triggered.

### When Triggered

The actions to take when trigger conditions are met are configured here.

The following options are available:

- **Streams** – Selects the stream from which the snapshot or recording will be obtained.
- **Email** – E-mails notifications to the email address specified in the Event Server settings. If this option is chosen, fill in the following:
  - **Subject** - The subject line of the notification e-mail.
  - **Additional Information** - Contents of the notification e-mail.
  - **Snapshot/Video Clip** - Choose to send a snapshot or video attachment from 5s before to 30s after the trigger.

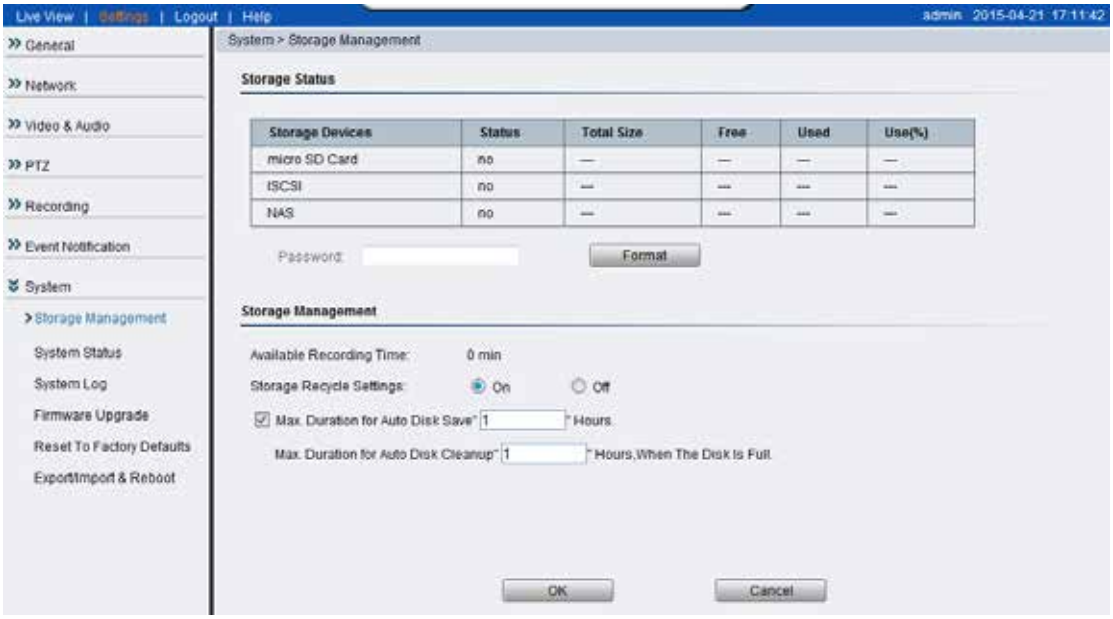
- **FTP** - uploads a snapshot or video clip to a FTP location specified in the Event Server settings.
    - **Snapshot/Video Clip** - Choose to upload a snapshot or video file from 5 seconds before to 30 seconds after the trigger. Files are sent as attachments.
- **Record** - Records video to the server specified in the Event Server settings and the microSD card when triggered. The video clip stored on both remote storage server and local storage is a video file 35 seconds in length (5 seconds before and 30 seconds after the trigger)
- **Trigger DO** –A Digital output signal is sent when triggered.
    - **Trigger Duration** - The length of time that the DO signal is sent. Options are 1, 2, 5, 10, 20 or 30 seconds. For more information please refer to the section on DI & DO.

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

# System

The system settings, which deal with hardware and firmware parameters, logs, and configuration lists, can be found under **Settings > System.**

## Storage Management




MicroSD class 2/4/6 cards, ISCSI, NAS can be accessed for offline video storage and upgrade purposes. MicroSD installed in the camera can be managed under **System > Storage Management.**

## Storage Status

The status of the current storage device can be obtained under *Storage Status*:

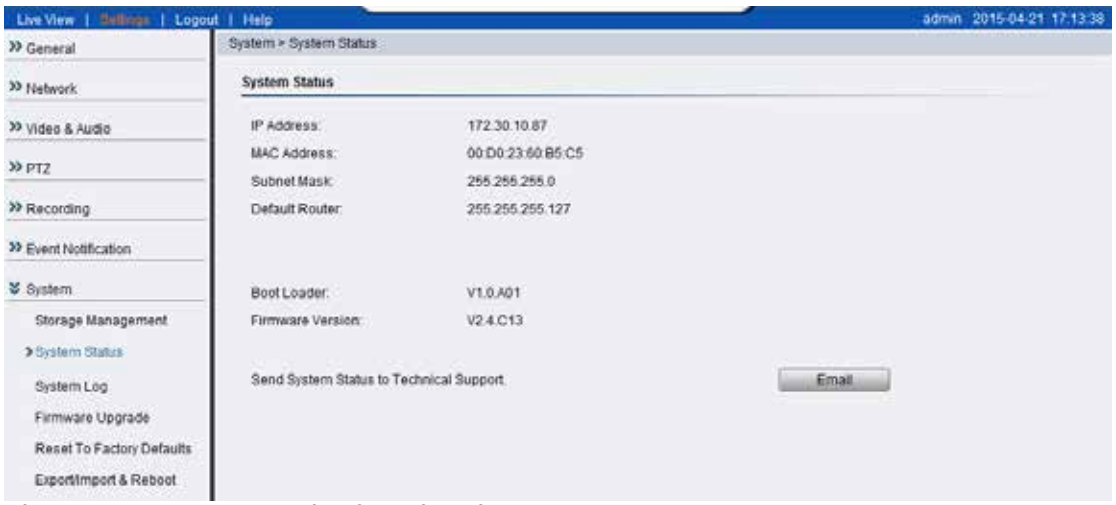
- **Storage Devices - -micro SD Card, ISCSI, NAS**
- **Status** – If a readable card is present, this will show *ready*, otherwise *no* will be shown.
- **Total Size** – The size of the card.
- **Free** – The total space left on the card.
- **Used** – The occupied space on the card.
- **Use(%)** – The percentage of the card that has been used.
- **Format** - User may need to type in the administrator password to format the storage device.

### Storage Management

- **Available Recording Time** - Calculates how much recording time is available based on current settings.
- **Storage Recycle Settings** - Turning the function O**n** will clear the storage device once it is full.
- **Max Duration for Automatic Disc Save __ Hours** – If storage recycling is activated, the card will save recordings continuously. (99999 hours max.)
- **Max Duration for Automatic Disc Cleanup __ Hours, When The Disk Is Full.** – If storage recycling is activated, the card will be cleared when this number of days has elapsed. (100 days max. Locked files will not be cleared)

Click **OK** to save or **Cancel** to abort the changes before you leave the page.

## System Status




The camera status can be found under **System > System Status.**

This section displays useful system information including:

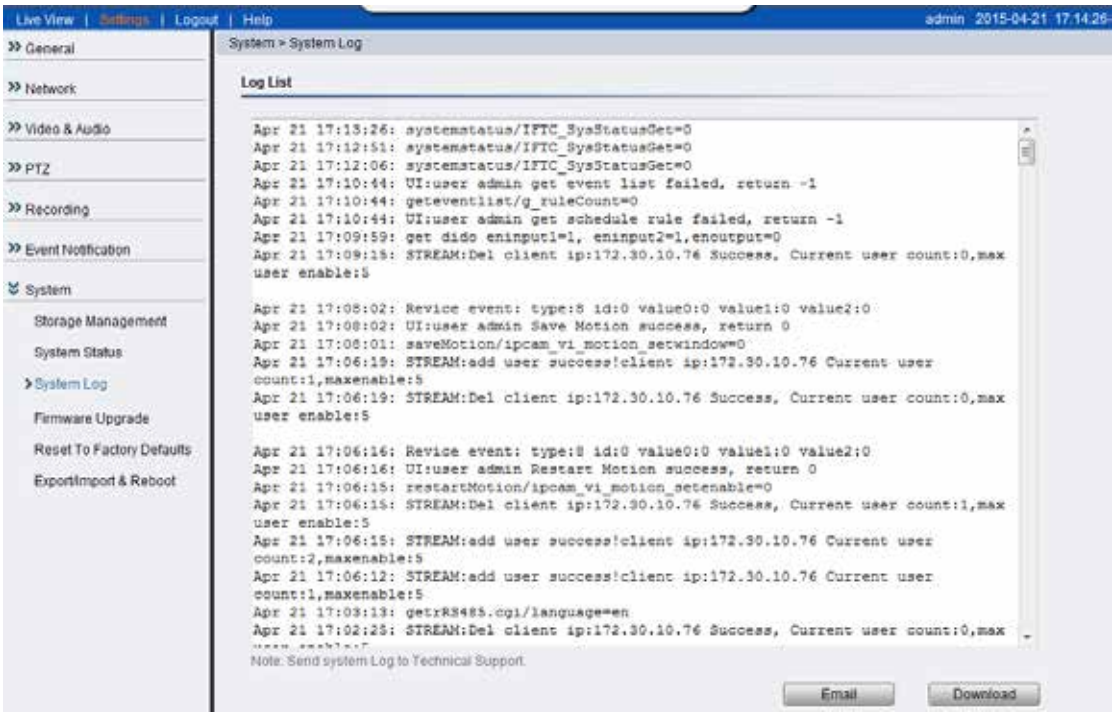
- **IP Address**
- **MAC Address**
- **Subnet Mask**
- **Default Router** address
- microSD Card Capacity Status
- **Boot Loader** Version
- **Firmware Version**

Clicking on the **Email** button will send the system status information out to the notification e-mail address specified in Event Server for troubleshooting or reference purposes.

## System Log

The system log, **System > System Log,** provides a log for system messages and events. The log lists important information such as login information, changes to camera settings (both successful and unsuccessful), triggered events, and error messages.

This information can be very useful in the event of a camera failure or unauthorized entry.

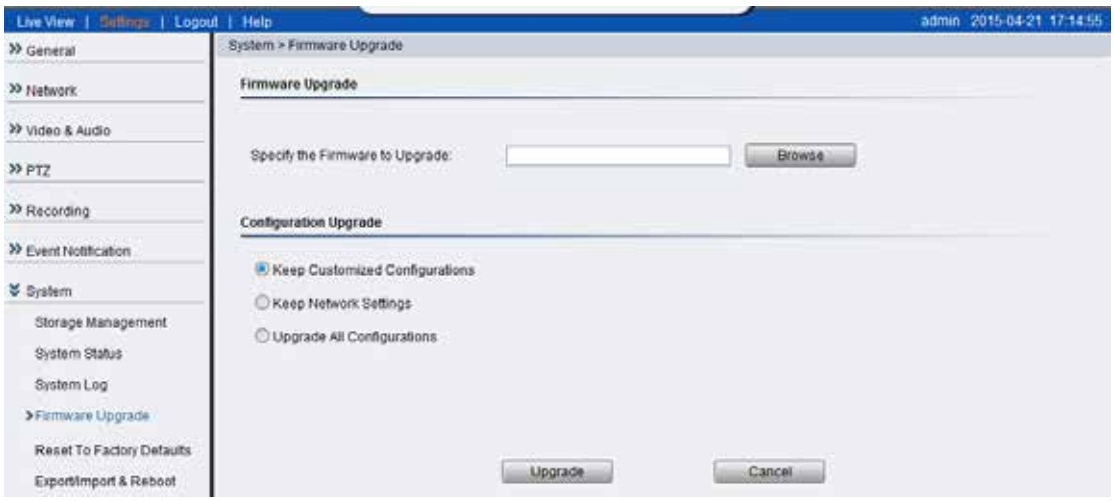

Live View | Settings | Logout | Help
admin 2015-04-21 17:14:26
General
Network
Video & Audio
PTZ
Recording
Event Notification
System
Storage Management
System Status
System Log
Firmware Upgrade
Reset To Factory Defaults
Export/Import & Reboot
System > System Log
Log List
Apr 21 17:13:26: systemstatus/IFTC_SysStatusGet=0
Apr 21 17:12:51: systemstatus/IFTC_SysStatusGet=0
Apr 21 17:12:06: systemstatus/IFTC_SysStatusGet=0
Apr 21 17:10:44: UI:user admin get event list failed, return -1
Apr 21 17:10:44: geteventlist/g_ruleCount=0
Apr 21 17:10:44: UI:user admin get schedule rule failed, return -1
Apr 21 17:09:59: get dido eninput1=1, eninput2=1,enoutput=0
Apr 21 17:09:15: STREAM:Del client ip:172.30.10.76 Success, Current user count:0,max user enable:5
Apr 21 17:08:02: Revice event: type:8 id:0 value0:0 value1:0 value2:0
Apr 21 17:08:02: UI:user admin Save Motion success, return 0
Apr 21 17:08:01: saveMotion/ipcam_vi_motion_setwindow=0
Apr 21 17:06:19: STREAM:add user success!client ip:172.30.10.76 Current user count:1,maxenable:5
Apr 21 17:06:19: STREAM:Del client ip:172.30.10.76 Success, Current user count:0,max user enable:5
Apr 21 17:06:16: Revice event: type:8 id:0 value0:0 value1:0 value2:0
Apr 21 17:06:16: UI:user admin Restart Motion success, return 0
Apr 21 17:06:15: restartMotion/ipcam_vi_motion_setenable=0
Apr 21 17:06:15: STREAM:Del client ip:172.30.10.76 Success, Current user count:1,max user enable:5
Apr 21 17:06:15: STREAM:add user success!client ip:172.30.10.76 Current user count:2,maxenable:5
Apr 21 17:06:12: STREAM:add user success!client ip:172.30.10.76 Current user count:1,maxenable:5
Apr 21 17:03:13: getrRS485.cgi/language=en
Apr 21 17:02:25: STREAM:Del client ip:172.30.10.76 Success, Current user count:0,max
Note: Send system Log to Technical Support.
Email
Download

Clicking **Email** will send the log out as an email the notification e-mail address specified in Event Server; Clicking **Download** will begin the browser download process to download the log to the local PC.

## Firmware Upgrade

Upgrading with a firmware file on a PC:

1. Power ON the device.
2. Connect to the camera through a web browser and go to **System > Firmware Upgrade.**




3. Click “Browse” and locate the file [cam number]fw.

## Configuration Upgrade

- **Keep customized configuration** to keep current configuration settings.
- **Keep Network Setting** to keep current network configuration.
- **Upgrade all configurations** to clear all settings back to factory defaults.

Click **Upgrade** to start the upgrade. Upon completion of firmware upgrade, the camera will reboot (you will be logged off).

The LED will flash amber during the firmware upgrading. The camera will start reboot after firmware upgrade completed. When the LED indicator turns green, the firmware is upgraded successfully.

If the status LED shows steady amber for over 1 minute, the camera will become unresponsive and the upgrade process may have failed. Please contact with your dealer for technical support.

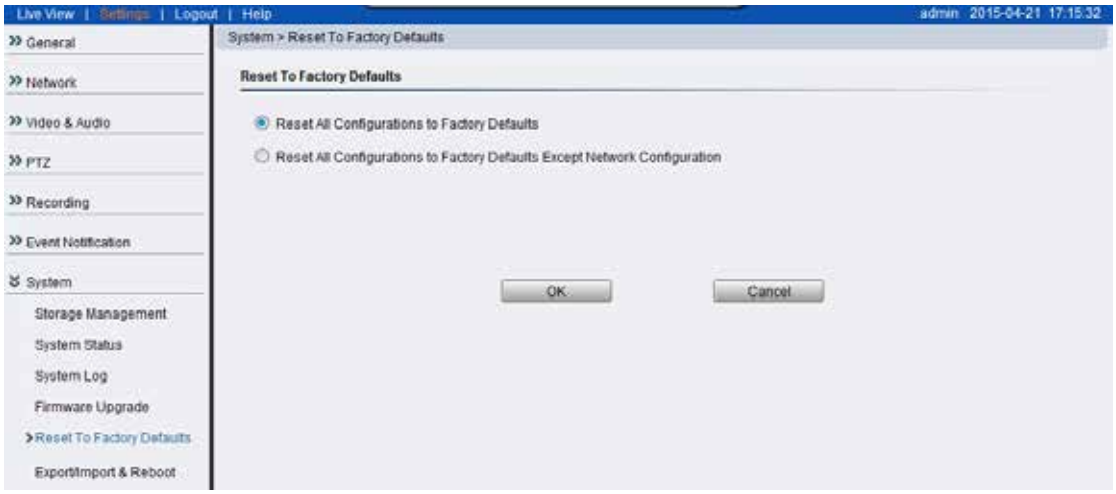
## Reset to Factory Defaults

To reset the device to the factory default settings:

1. Make sure the device is in operation mode.
2. Using a needle or similar object to press and hold the Reset button until the camera restarts (about 2 seconds). The status LED will change to amber during startup.
3. When the Status Indicator changes to back to Green (which may take up to 1 minute), the process is complete. The default IP address is 192.168.88.10 if not assigned by a DHCP server.

**Note:** Resetting to the factory default settings using the Reset button will cause all parameters (including the IP address) to be reset. To reset the unit without changing parameters, disconnect and reconnect the power connector.

Camera resets can also be performed under **System> Reset To Factory Default.**



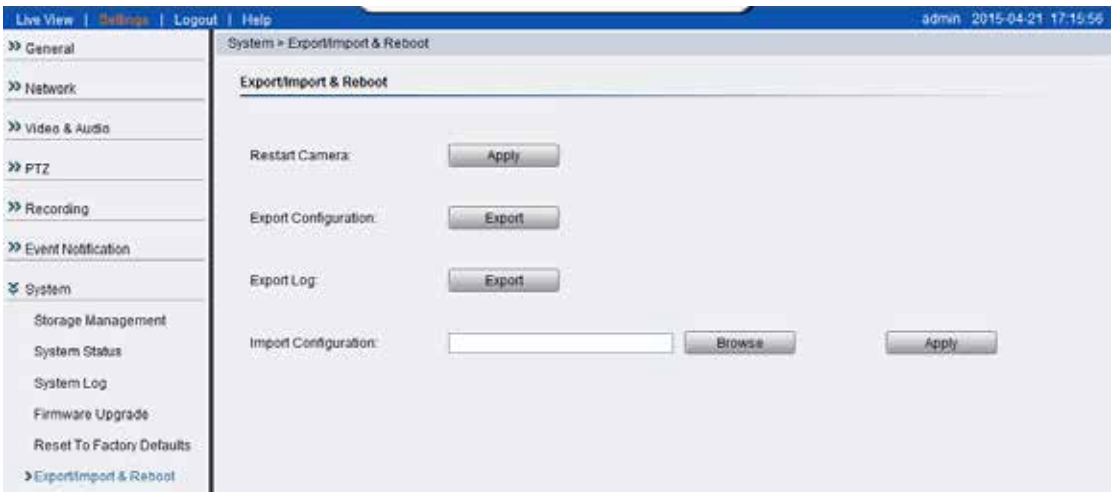

There are 2 types of reset.

- Reset All Configurations to Factory Defaults
- Reset All Configurations to Factory Defaults Except Network Configuration.

Click **OK** after choosing a reset option to perform a reset.

Alternately, you may press the “Reset” button on the bottom of the camera to perform a complete reset of the camera (no configurations retained). To reset the camera by pressing the “Reset” button on the bottom of the camera, press and hold the “Reset” button for 3 seconds. During this time, the LED indicator in front of the camera will blink in red.

## Export/Import & Reboot




In certain situations it may be necessary to restart your network camera (network settings changed, DHCP added, etc). The settings under **System > Export/Import & Reboot** allow you to restart the camera.

This menu also contains options to export configuration details (for backup or replication purposes), as well as import configuration details. The following options are available:

- **Restart Camera** - Resets the camera when **Apply** is clicked**.**
- **Export Configuration** - Export the camera’s settings and configurations by clicking **Export**, this will start a browser dialogue to download the configuration**.**
- **Export Log**
- **Import Configuration** - Imports previously exported camera settings. The field should contain the path for the camera configuration file. Click **Browse**: to browse your PC for the configuration file. Click **Apply** to import the settings.

# Chapter 5. Configuration through the IP Utility

Camera configurations can be done through web interface and IP Utility.

**For IP Utility, please look into this chapter; for web interface, please refer to Chapter 4.

| | | Web Interface | IP Utility |
|---|---|---|---|
| General | Basic Settings | V | X |
| | User Account | V | X |
| | Date & Time | V | X |
| Network | Network Configuration | V | Set IP Only |
| | Port Settings | V | X |
| | UpnP | V | X |
| | Wifi Setting (CAM1300/1311 Only) | V | X |
| Video & Audio Settings | Basic Settings | V | X |
| | Image Appearance Settings | V | X |
| | Video Streams | V | X |
| | Audio Settings | V | X |
| PTZ | RS-485 Settings/PTZ Settings | V | X |
| Recording | Recording Basic Settings | V | X |
| | Recorded File Management | V | X |
| Event Notification | Event Server | V | X |
| | Motion Detection | V | X |
| | Tampering Detection | V | X |
| | DI & DO | V | X |
| | Event Settings | V | X |
| System | MicroSD Card Management | V | X |
| | System Status | V | V |
| | System Log | V | X |
| | Firmware Upgrade | V | V |
| | Resetting to Factory Default Settings | V | X |

| | | | |
|---|---|---|---|
| | Export/Import | V | V |
| | Reboot | V | V |
| Camera Search | | X | V |
| Login | | V | V |
| Properties | | X | V |
| Delete from Tool | | X | V |
| Clearing and Setting Status | | X | V |
| Camera Group Actions | | X | V |
| Focus Tool | | X | V |

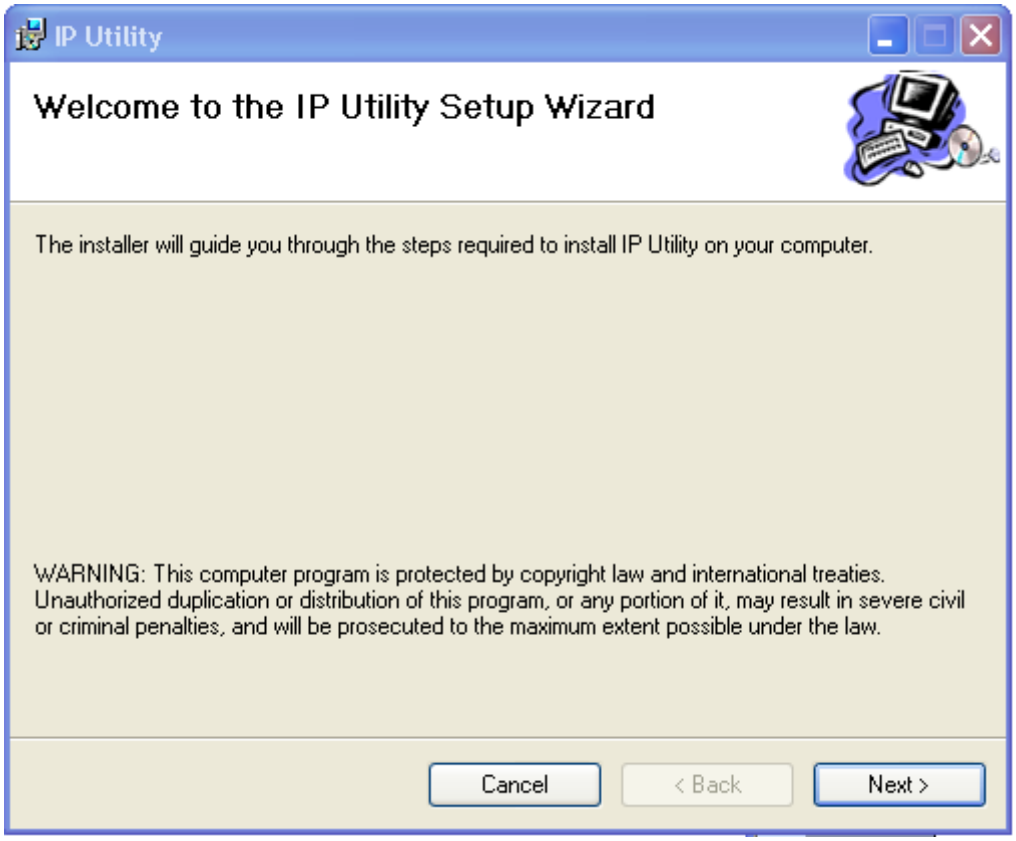
# 5.1. Overview

The IP Utility is a set of tools for network cameras. It includes tools to create, modify, delete and manage groups within the camera; The IP Camera Utility also provides tools to perform simple connectivity configuration, firmware upgrades and reboot operations. The utility is intended to simplify the configuration and management of multiple cameras.

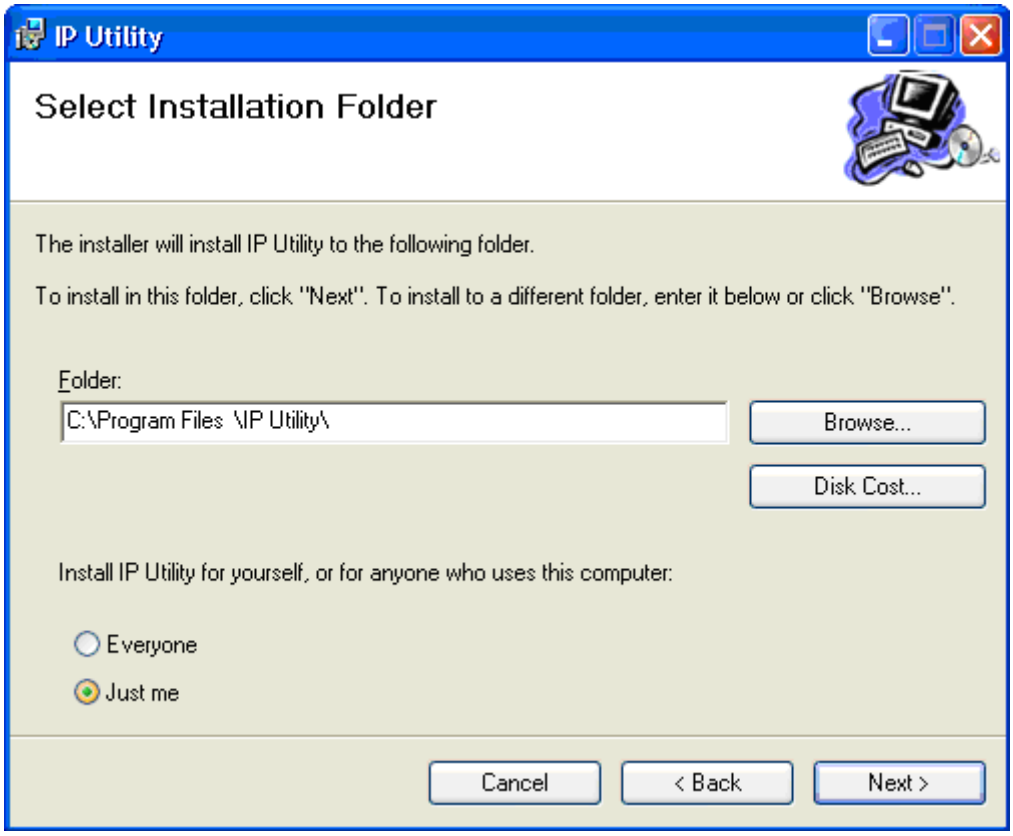
# 5.2. Installing the IP Utility

Install the IP Utility with the following steps:

1. Start SearchToolInstall.exe to begin the utility installation dialog:


IP Utility
Welcome to the IP Utility Setup Wizard
The installer will guide you through the steps required to install IP Utility on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

2. Click **Next** to continue with installation.


IP Utility
Select Installation Folder
The installer will install IP Utility to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files \IP Utility\
Browse...
Disk Cost...
Install IP Utility for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

3. Fill in the **Folder** field to specify the installation path. Clicking **Browse…** pulls up a file system browser. Clicking **Disk Cost** will display free space and the space the utility will take up on disks.

4. Choose if you wish to install the application for the current user only (**Just me**) or all users on this computer (**Everyone**).

5. Click **Next** to continue. The system will respond with a ready screen. Click **Next** again. The system will respond by displaying installation progress.

6. You may click **Cancel** at any time before finishing introduction, or **<Back** if it is available to cancel or jump back a step. Click **Close** when after installation is complete. The software is ready to use at this point.

# 5.3. IP Utility Basics

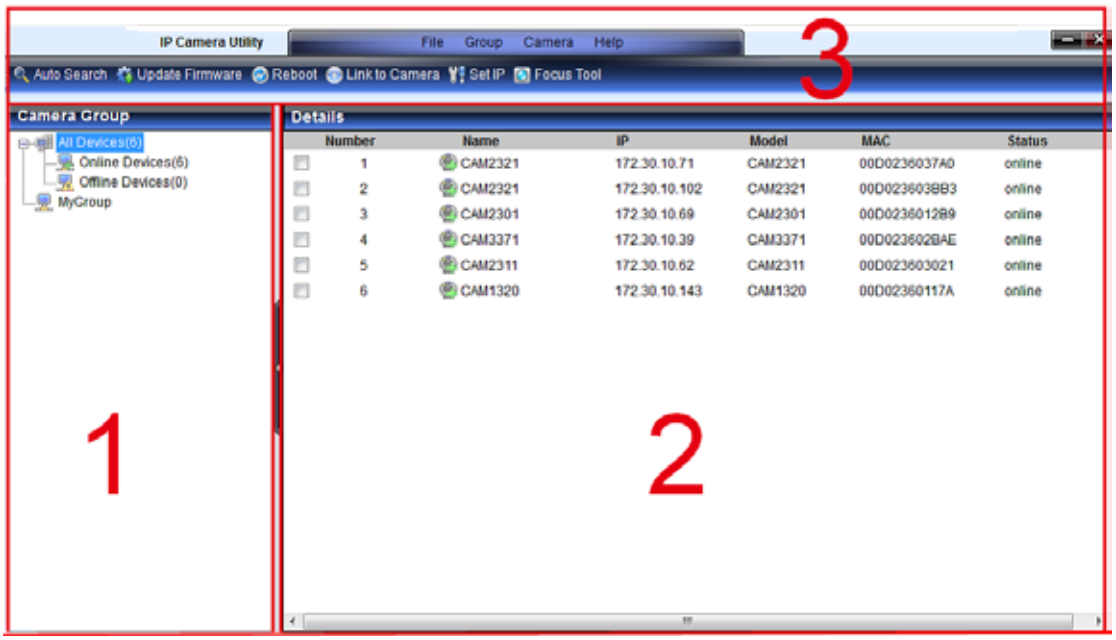
## Starting the IP Utility

To start the IP Utility, double-click the **IP Utility** shortcut on your desktop or go to **Start > Program Files > IP Utility> IP Utility.**

**Note:** On startup, the utility will automatically scan for IP Cameras on the same subnet as the computer. In some cases this may result in longer wait times.

## IP Utility Main Screen

The IP Utility main screen is divided into 3 sections:




1. **Camera Group Display** – displays group details
2. **Camera Detail Display** – displays camera details
3. **Function Buttons and Menus** – this section contains alternative access methods for functions that can be done within the Camera Group and Camera Detail Displays. This manual does not discuss this section separately.

## Exiting the IP Utility

To exit the IP utility, click the X button on the top right corner of the screen or choose **File > Exit** from the menu bar.

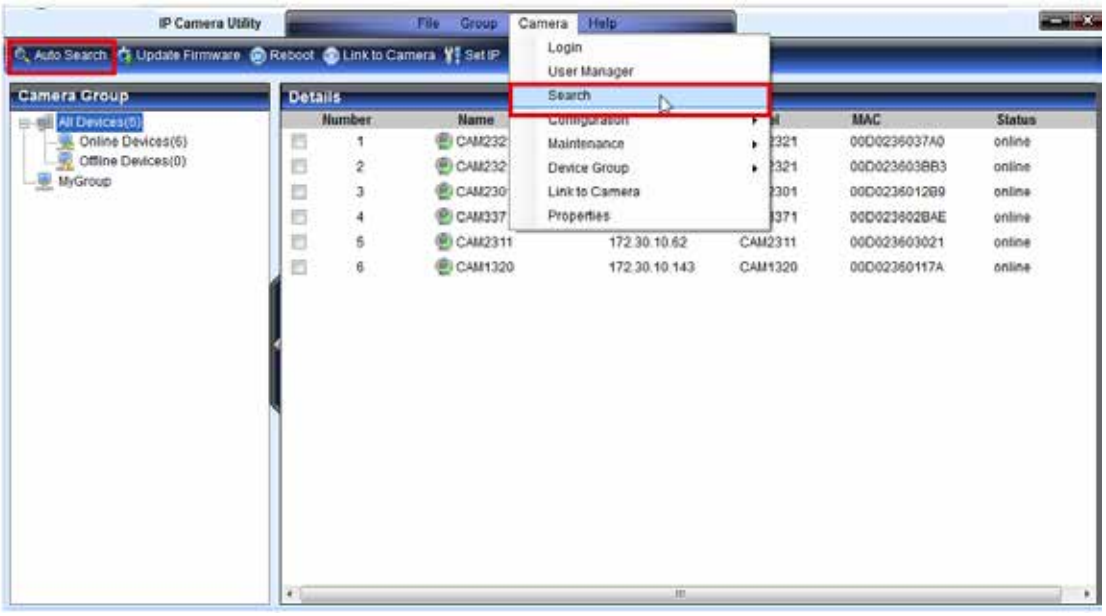
# 5.4. Camera Actions

This section displays camera information, including the IP, Name, Model, MAC Address, Status and Network Mask.

## Search

Search updates the details for the cameras listed, as well as locates any new cameras connected on the same subnet. The search is performed every time the IP utility starts. To perform search again:

1. Click the **Auto Search** button or click **Camera > Search** in the menus. The search will begin, and a status bar will display the search progress.

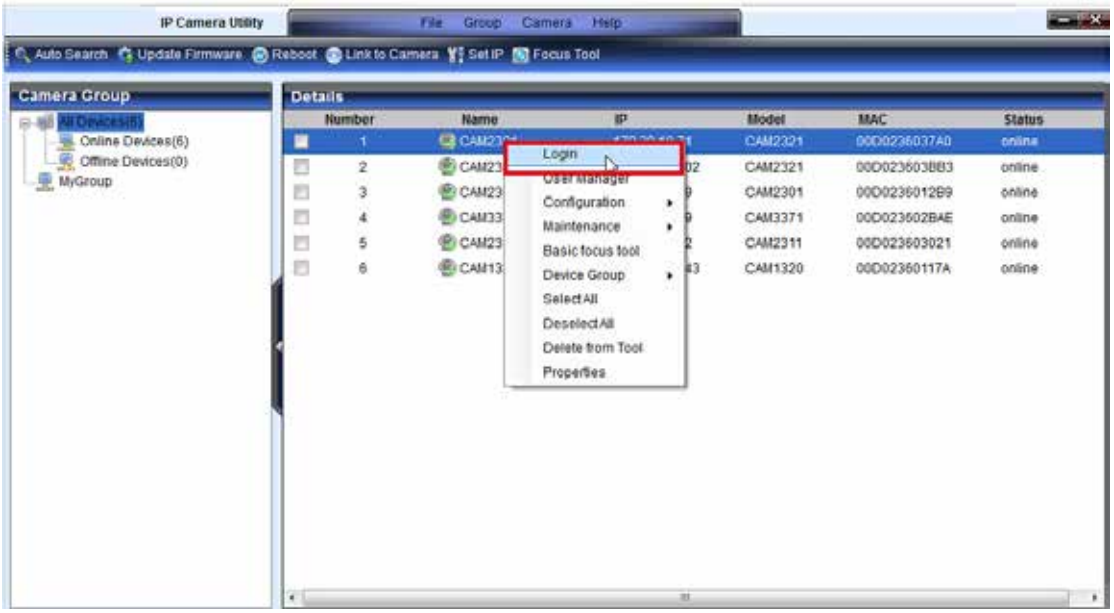


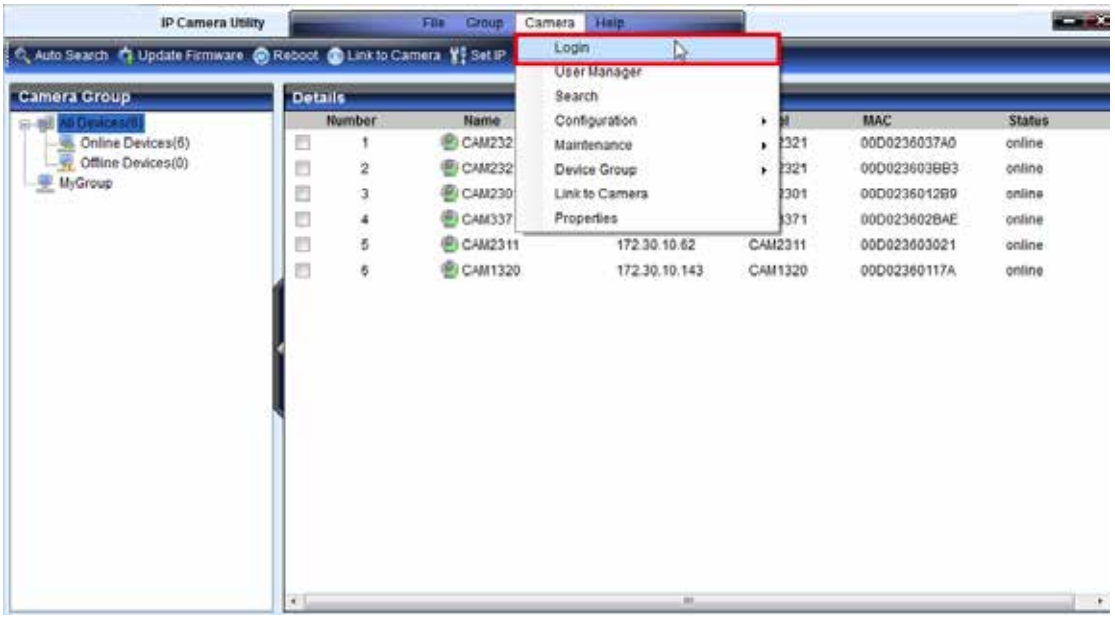

**Note:** The search may take up to 2 minutes, depending on your network configuration.

## Login

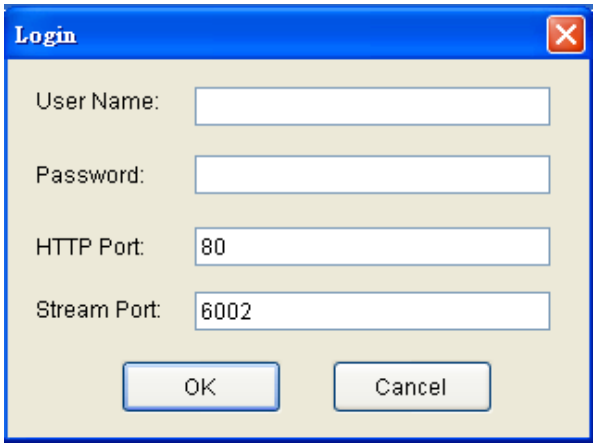
Before performing camera actions, most cameras require that proper login credentials are supplied. To login to a camera:

1. Right click the camera you wish to set. Select **Login** from the popup, the system responds with the *Login* window. Alternatively, click the camera entry and choose **Login** from the **Camera** menu.



2. Fill in the user name and password.



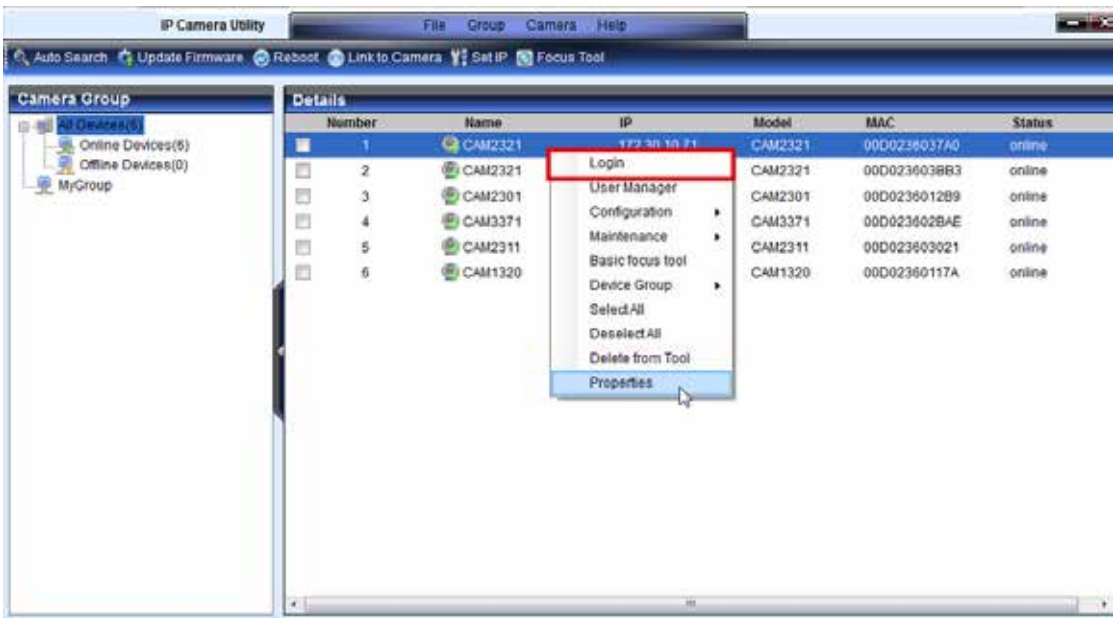

3. Click **OK** to set the username and password.

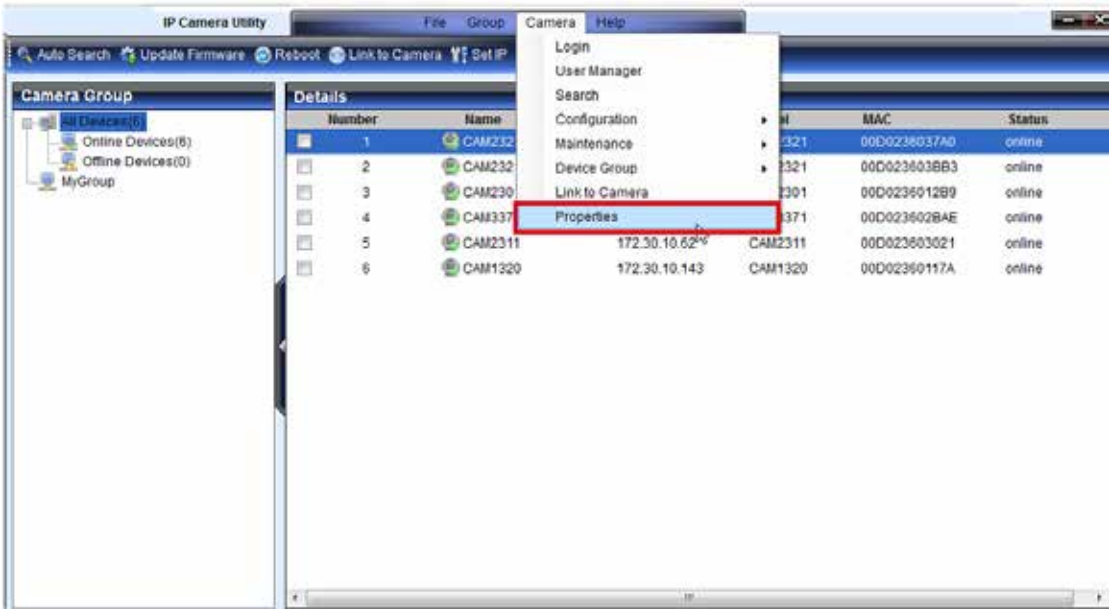
**Note:** To perform further configuration, please make sure that the User set here has administrator privileges. The default Username/Password for cameras is admin/admin.

## Properties

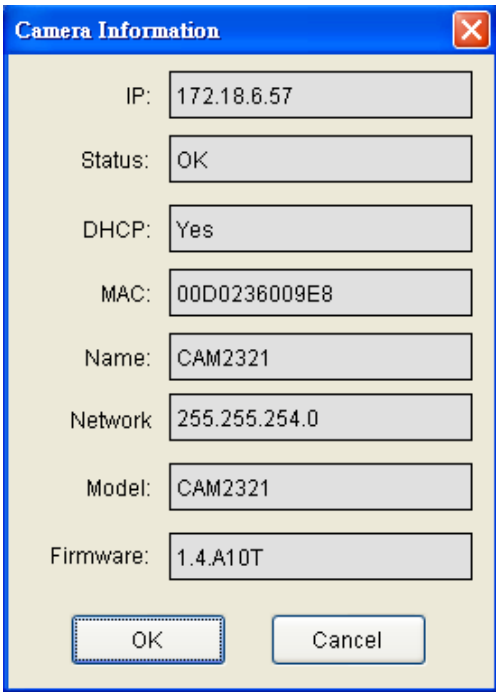
The properties of a camera can be viewed by following these steps:

1. Select a camera by checking the box in the first column of its listing.
2. Right click the camera and select **Properties**, or select **Camera > Properties** from the menu bar.



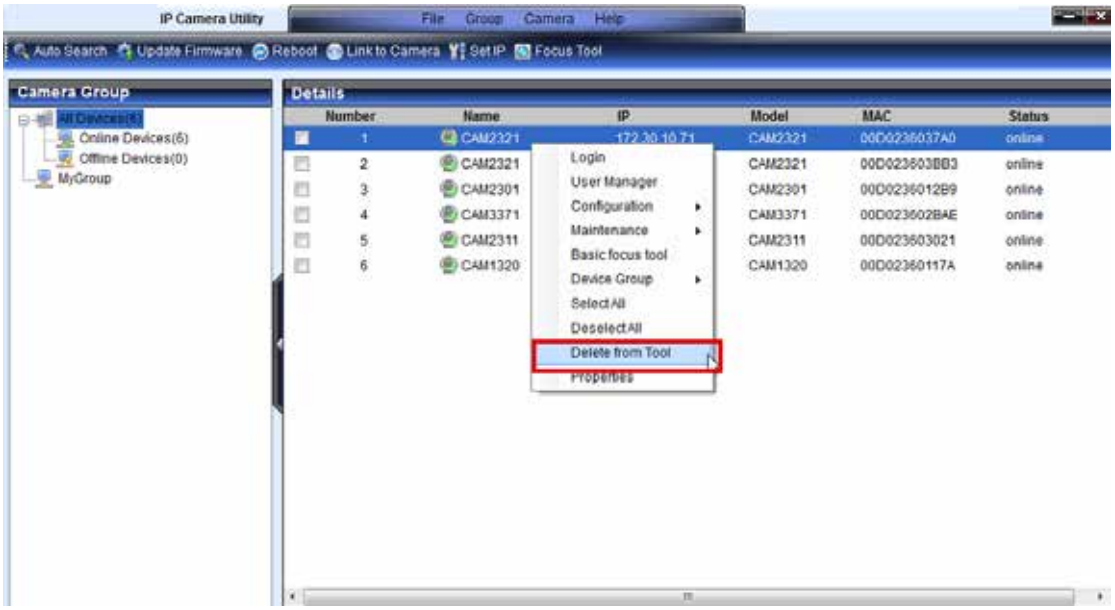



The *Camera Information* popup will display with camera details.



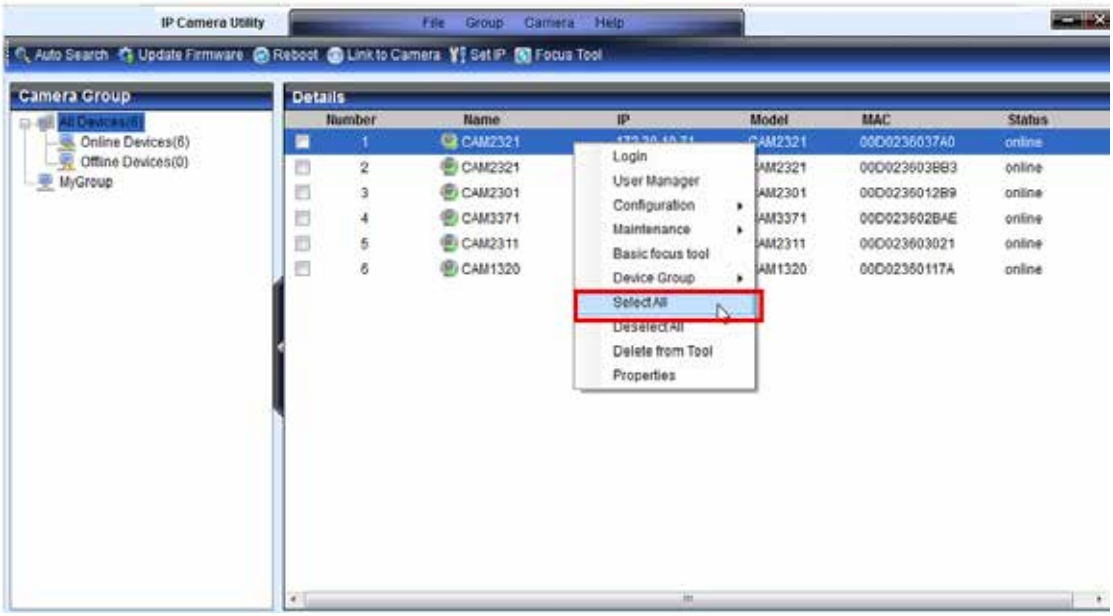
## Delete from Tool

1. Select one or more cameras by checking the box in the first column of their listing.
2. Right click the camera(s) which you want to delete from the tool and select **Delete from Tool.** The camera will be removed from the listings.




## Select All

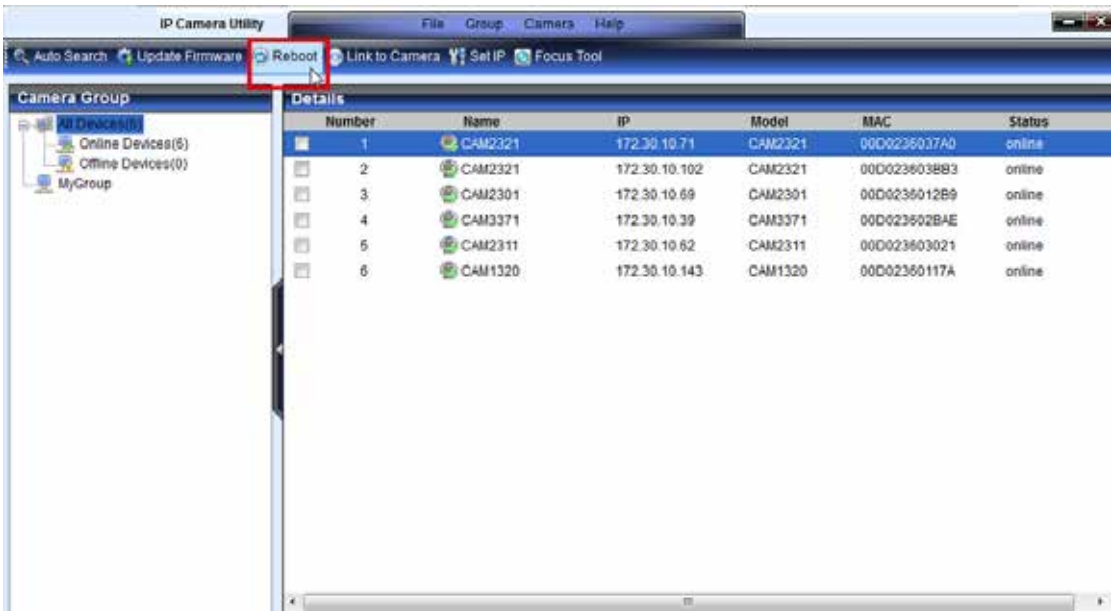
In a group context, right clicking a camera, and selecting **Select All** will select all the cameras in the group.

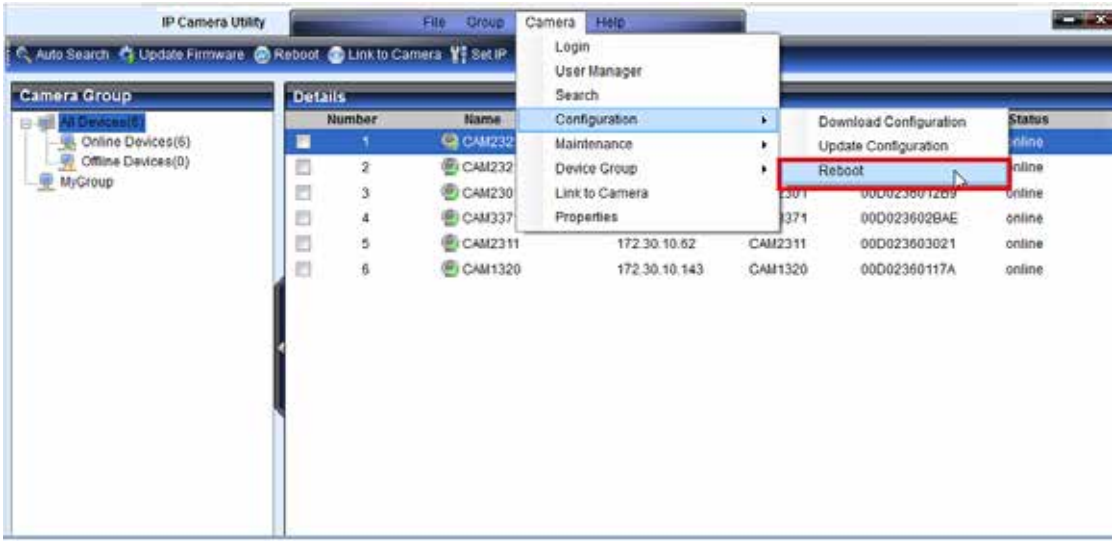


## Reboot Camera

In certain cases it may be necessary to reboot the camera. To do this:

1. Select a camera by checking the box in the first column of its listing.
2. Click the **Reboot** button or select **Camera > Configuration > Reboot** from the menu bar.



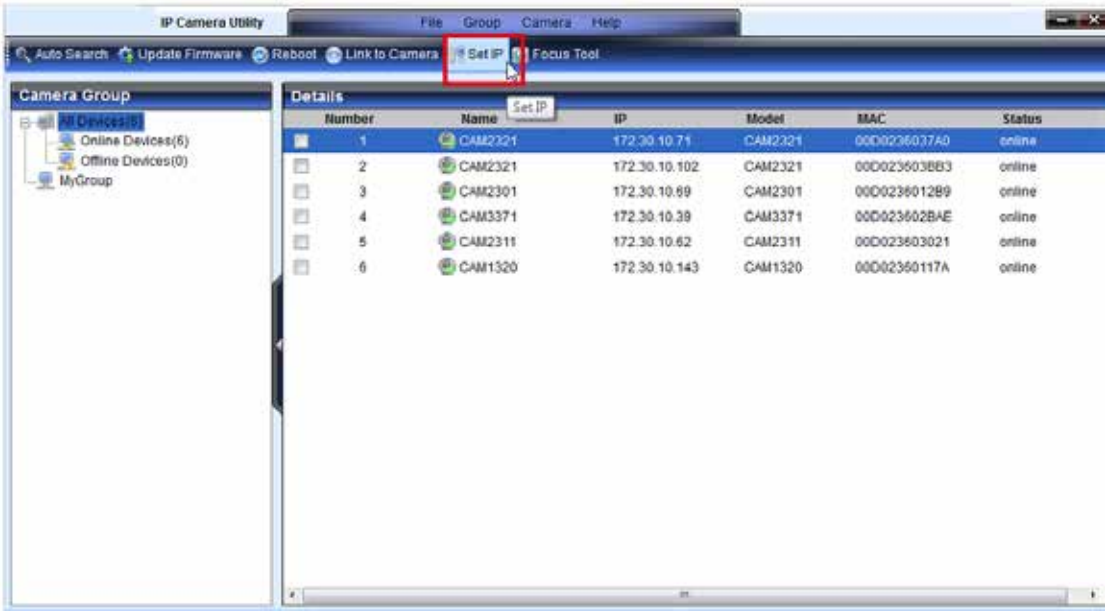




The camera will reboot. If further configuration is needed, perform the **Login** function again after the reboot is completed.

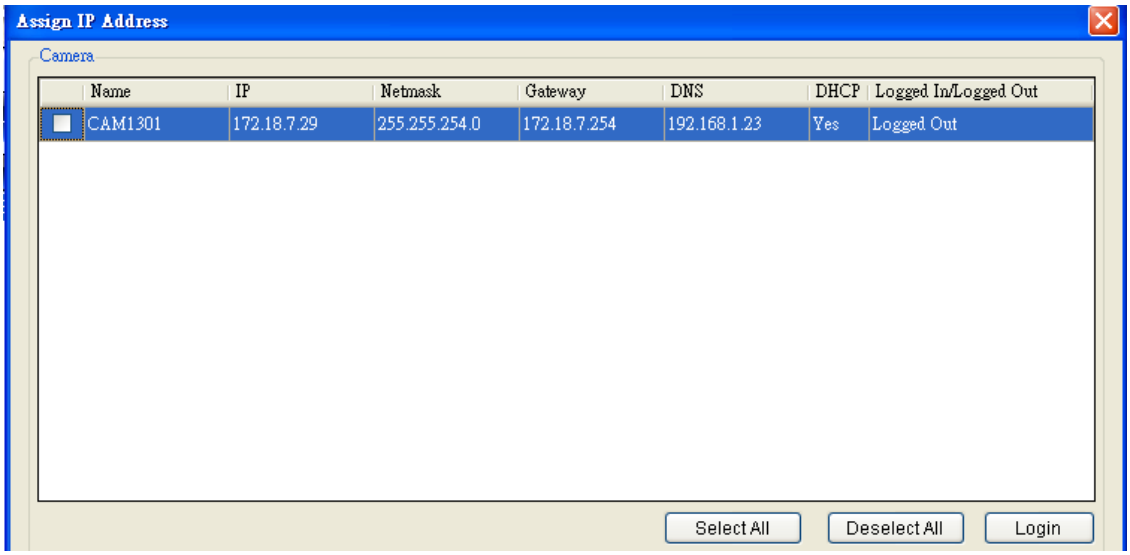
## Set IP

The IP Address of a camera can be set by following these steps:

**1.** Click the **Set IP** button.

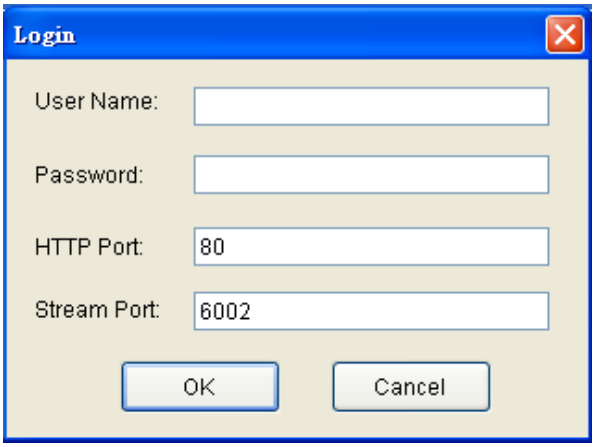

IP Camera Utility
File Group Camera Help
Auto Search Update Firmware Reboot Link to Camera Set IP Focus Tool
Camera Group
All Devices(6)
Online Devices(6)
Offline Devices(0)
MyGroup
Details
Set IP
Number Name IP Model MAC Status
1 CAM2321 172.30.10.71 CAM2321 00D023603 7A0 online
2 CAM2321 172.30.10.102 CAM2321 00D023603BB3 online
3 CAM2301 172.30.10.69 CAM2301 00D023601 2B9 online
4 CAM3371 172.30.10.39 CAM3371 00D023602BAE online
5 CAM2311 172.30.10.62 CAM2311 00D023603021 online
6 CAM1320 172.30.10.143 CAM1320 00D02360117A online

**2.** You can choose to obtain an IP address from DHCP or assign a fixed IP.




**3.** Select one or more cameras by checking the box in the first column of their listing. Click **Select All.**

**4.** A *Login* window will pop up. Fill in the user name and password. Click **OK**.

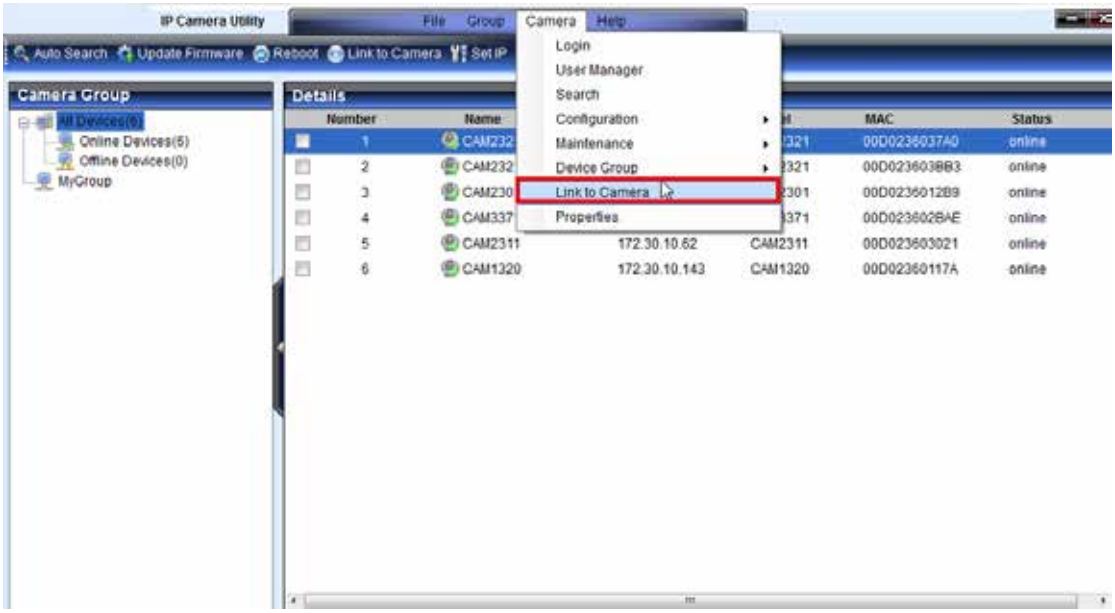



Click **OK** to save or **Cancel** to abort the changes before you leave the page.

# Link to Camera Web Interface

## Link to Camera

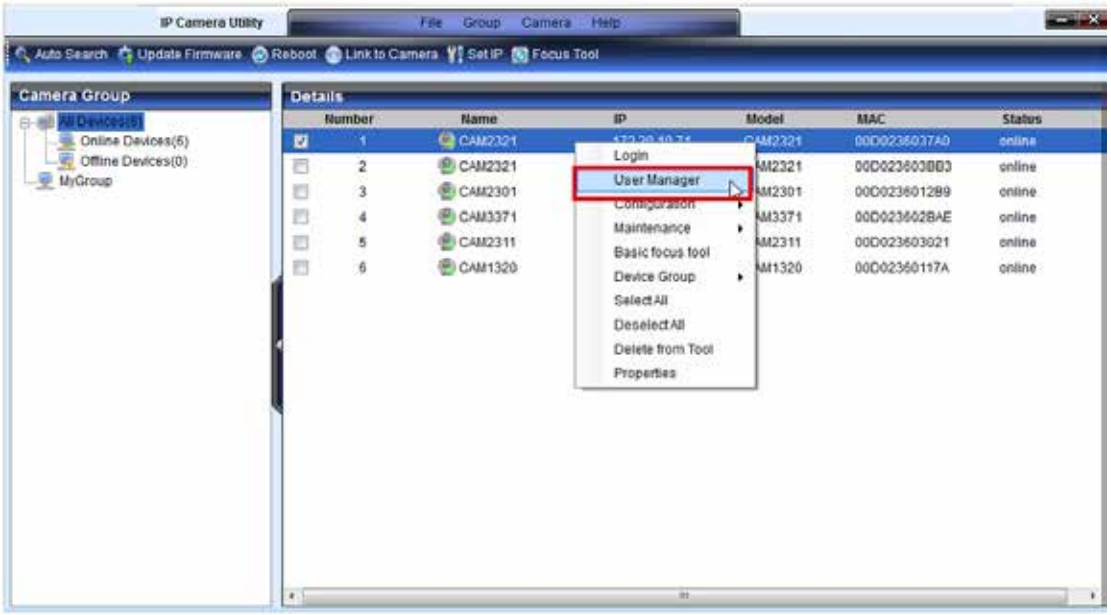
1. Select a camera by checking the box in the first column of its listing.
2. Double click the selected camera or select **Camera > Link to Camera** in the menu bar. The camera's live view webpage will open in a browser window.

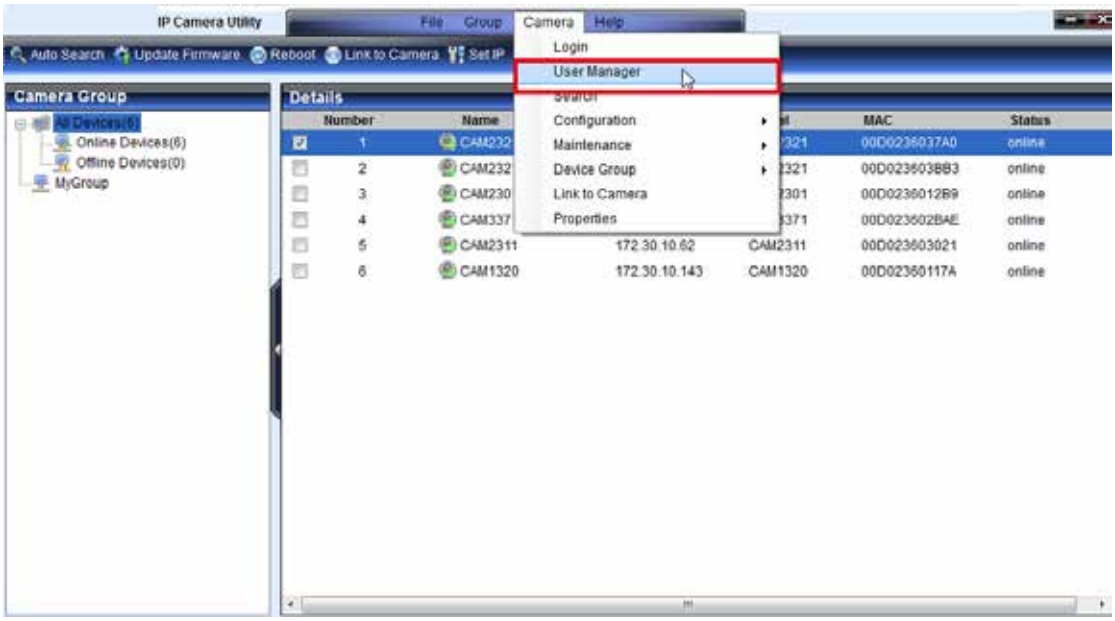


### Link to Camera User Manager

This function links to the user management page of the selected camera.

1. Select a camera by checking the box in the first column of its listing.
2. Right click the camera and select **User Manager** or click **Camera > User Manager** in the menu bar. The camera's user management webpage will open in a browser window.



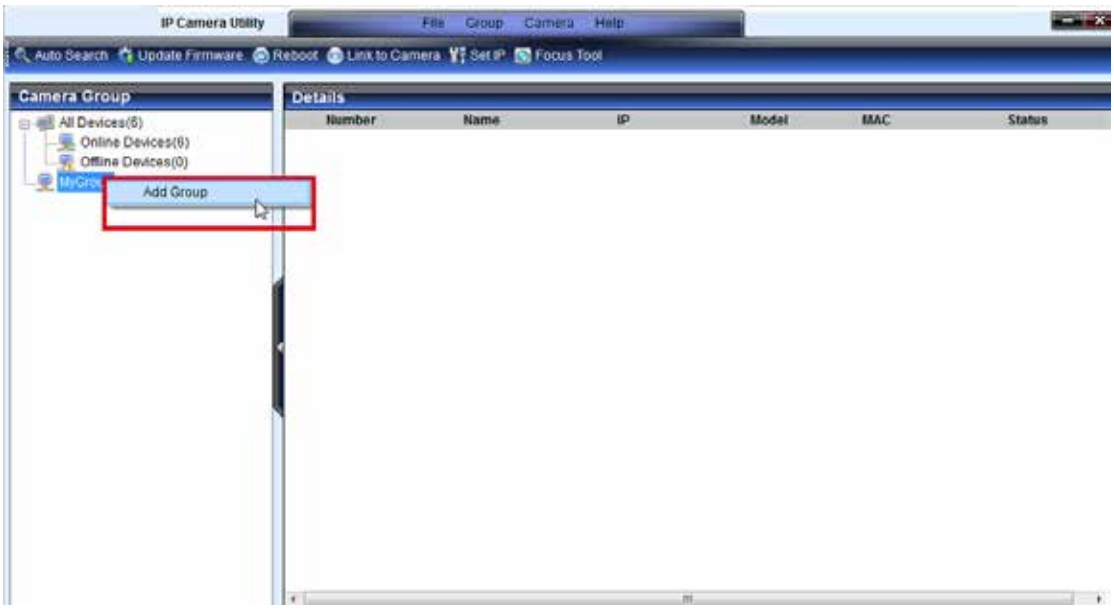
# 5.5. Camera Group Actions

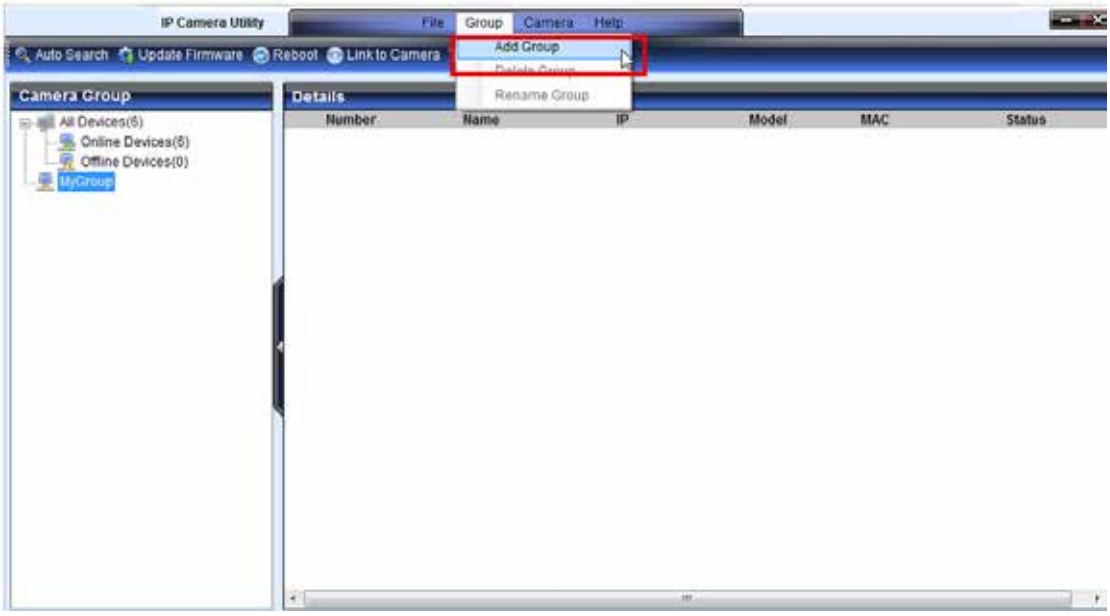
The *Camera Group* frame contains a simple tree containing group listings. There are two pre-defined subsections.

- **All Devices** - contains all the cameras in the tool, as well as predefined groups *New Devices* and *Warnings/Errors*
- **MyGroup** – contains only user defined groups.

## Add Group

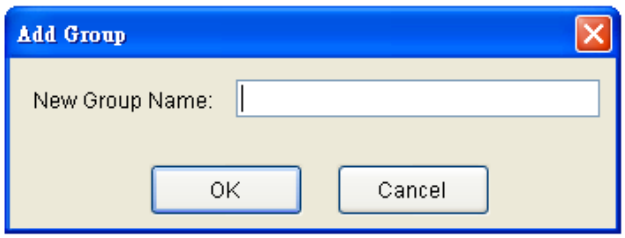
1. Right click the *MyGroup* root, and choose **Add Group** or choose **Add Group** from the **Group** menu.



The system responds with the *Add Group* popup.

2. In the *New Group Name* field, type in a group name.

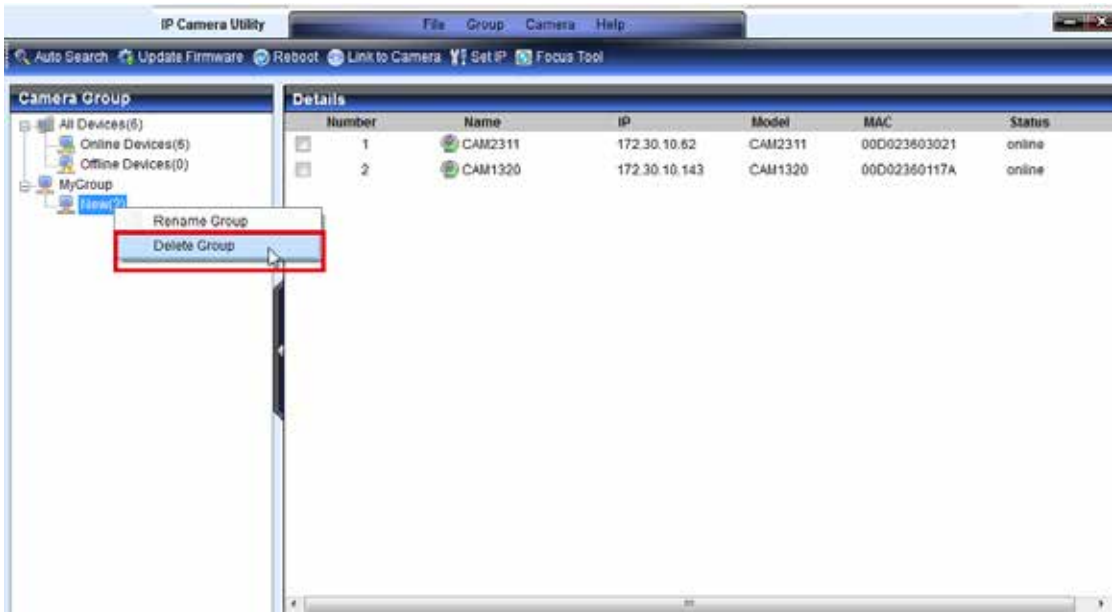


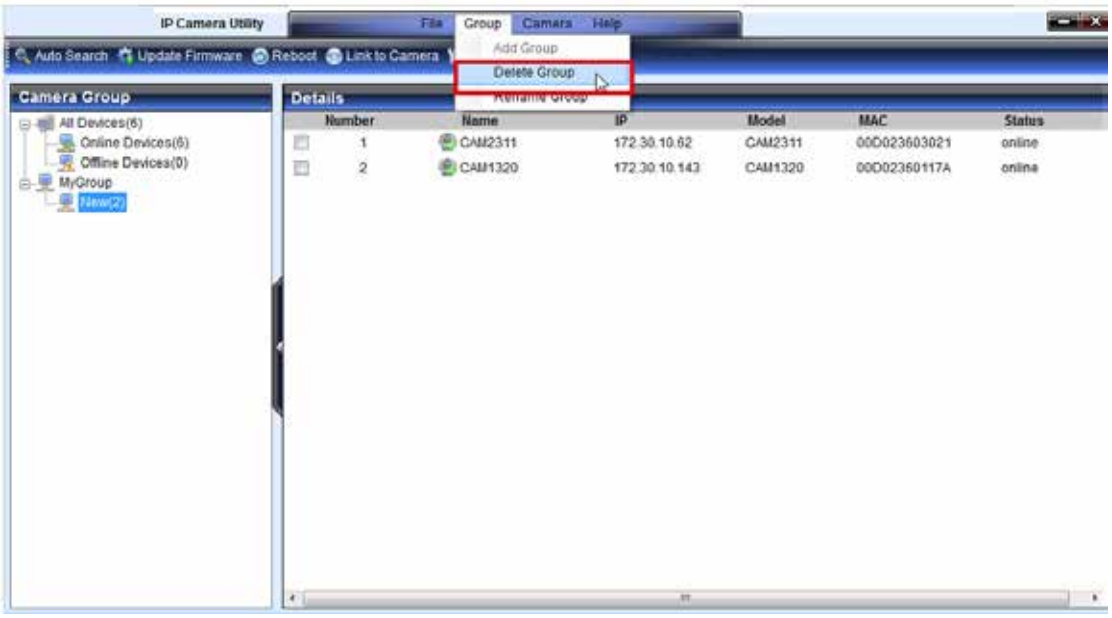

3. Click **OK** to add the group. The group will appear under *MyGroup*

**Note:** Camera group names can contain upper and lower-case letters, numerals and the _ symbol. Cameras can belong to more than one group.

## Delete Group

1. Expand *MyGroup* and right-click the group you wish to delete.
2. Choose **Delete Group** to delete the group. Alternatively, click the group and choose **Delete Group** from the **Group** menu.



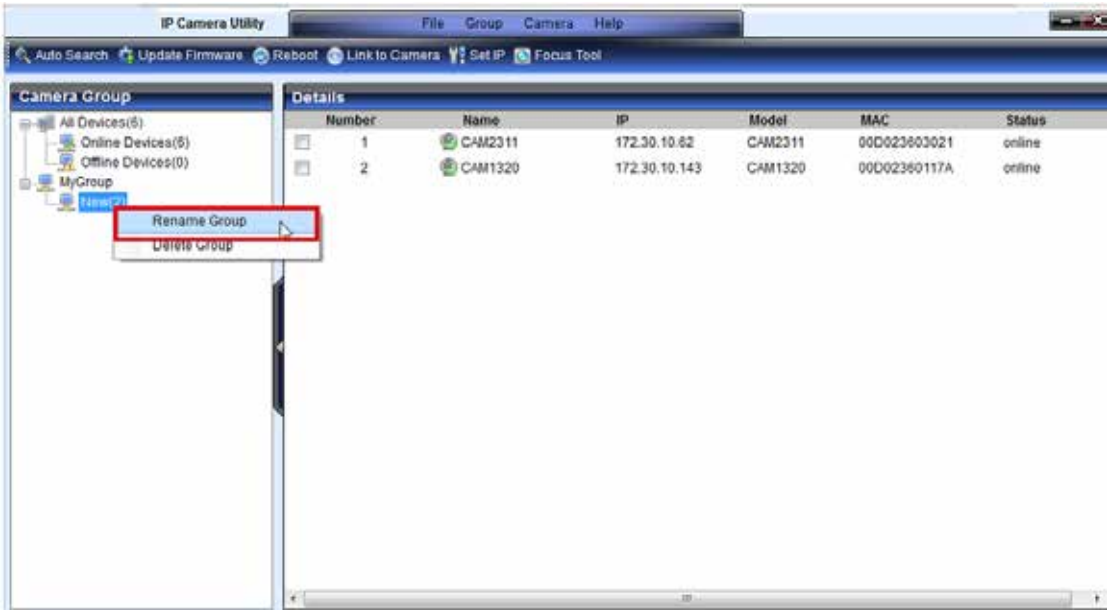


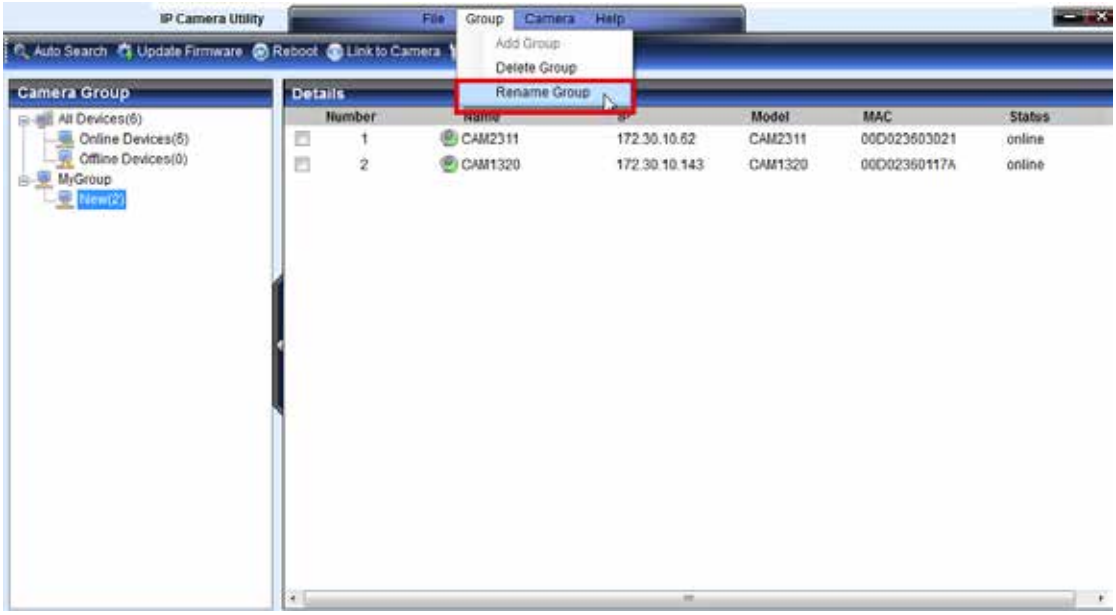

3. The system will ask to confirm the deletion. Click **Yes** to delete the group.

**Note:** Groups may be deleted, even if they contain cameras.

## Rename Group

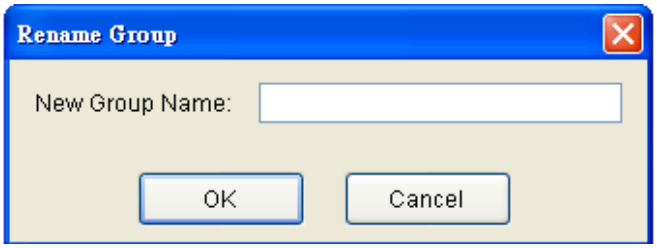
1. Expand *MyGroup* and right-click the group you wish to rename.
2. Choose **Rename Group**. Alternatively, click the group and choose **Rename Group** from the **Group** menu.






The *Rename Group* popup appears.

**3.** Enter a new group name in the *New Group Name* field.



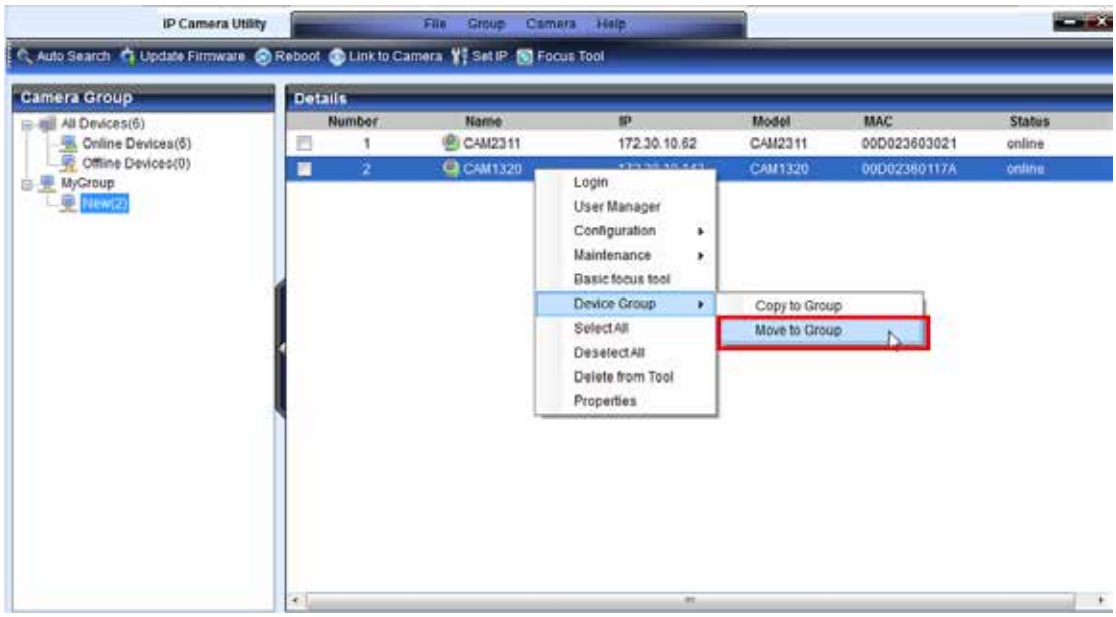

**4.** Click **OK** to save your changes.

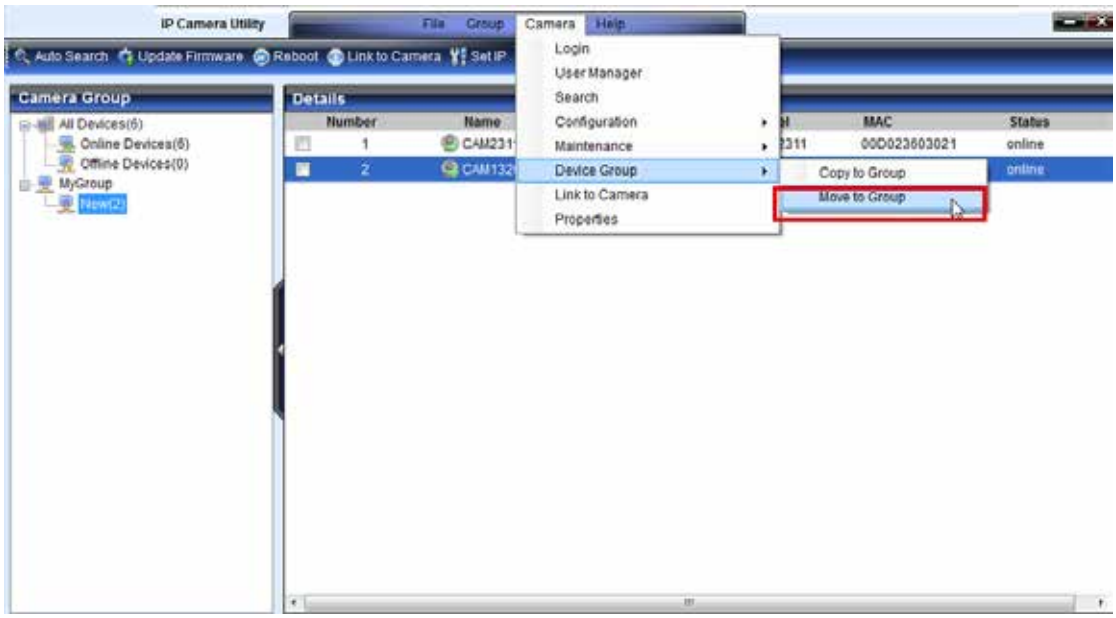
**Note:** Camera group names can contain upper and lower-case letters, numerals and the _ symbol.

## Move to Group

This function moves the selected camera(s) from a group to another group.

1. From the *Camera Group* window select a group under *MyGroup*.
2. Select one or more cameras from the existing group by checking the box in the first column of their listing.
3. Right click the camera and select **Device Group > Move to Group**, or select **Camera > Device Group > Move to Group** from the menu bar.



4. In the *Select Group* pop-up box select the destination group.

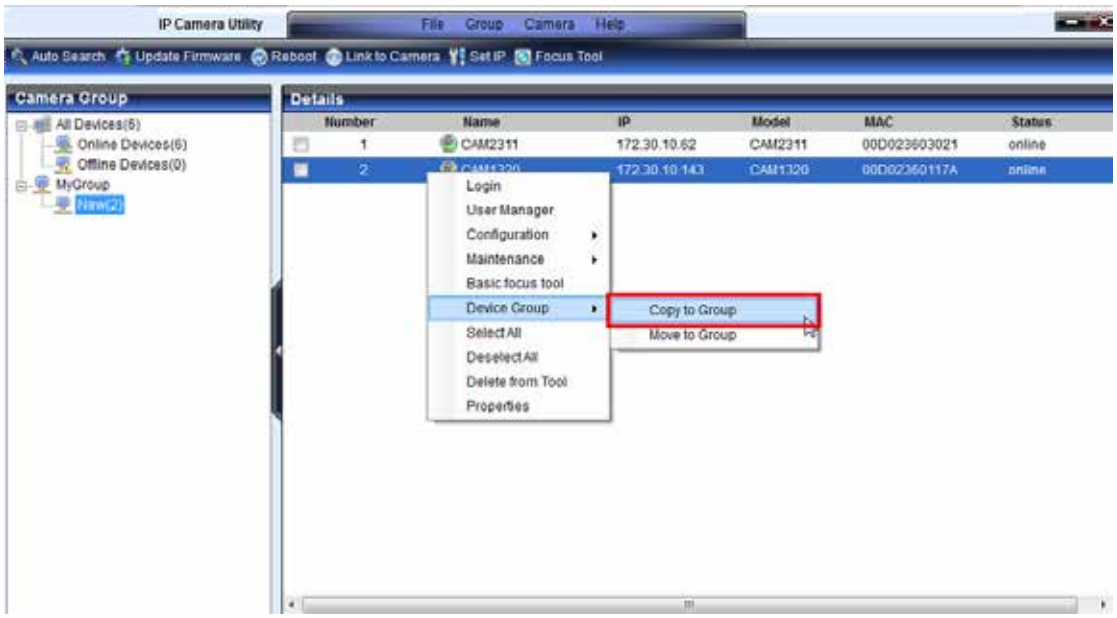
5. Click **OK** to move the selected camera(s) to the group.

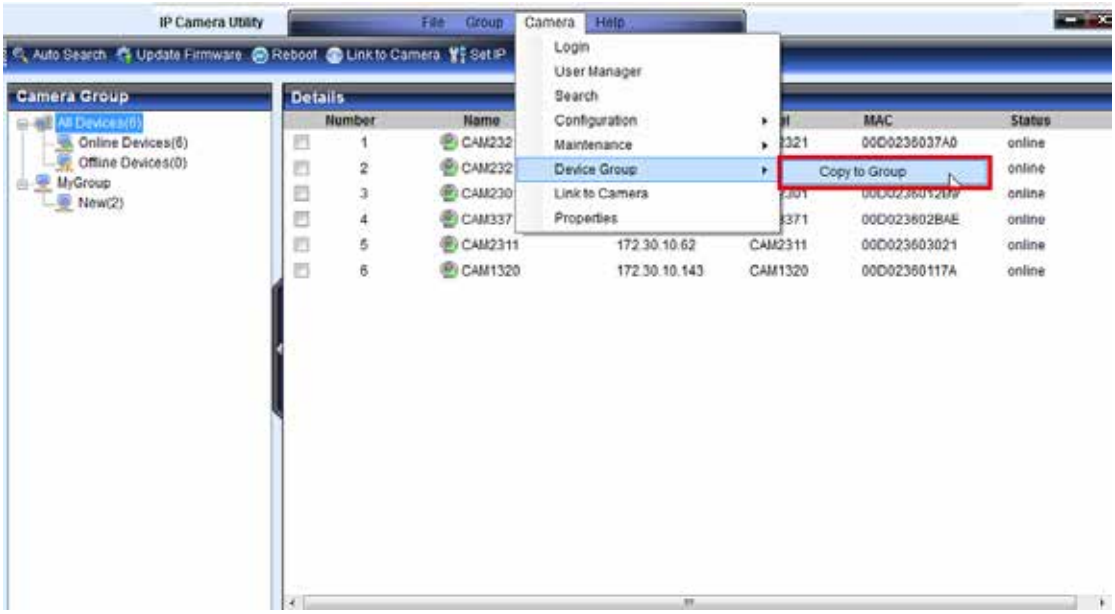
**Note:** Cameras can not be moved from groups under *All Devices.*

## Copy to Group

This function copies the selected camera(s) from a group to another group.

1. From the *Device Group* window select a group.
2. Select one or more cameras from the existing group by checking the box in the first column of their listing.
3. Right-click the camera(s) and select **Device Group > Copy to Group**, or select **Camera > Device Group > Copy to Group** from the menu bar.



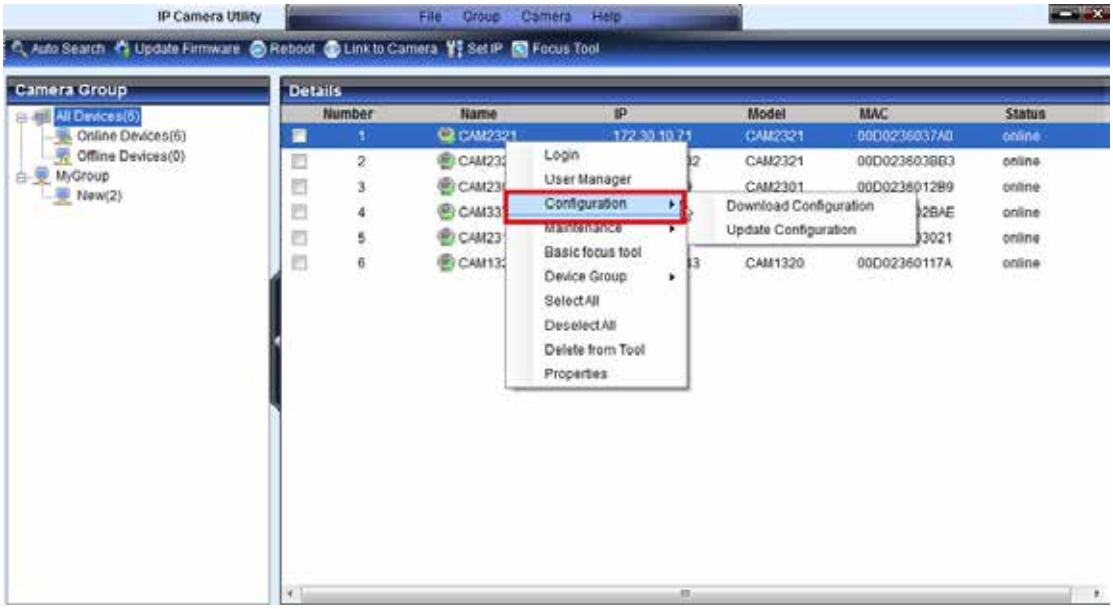


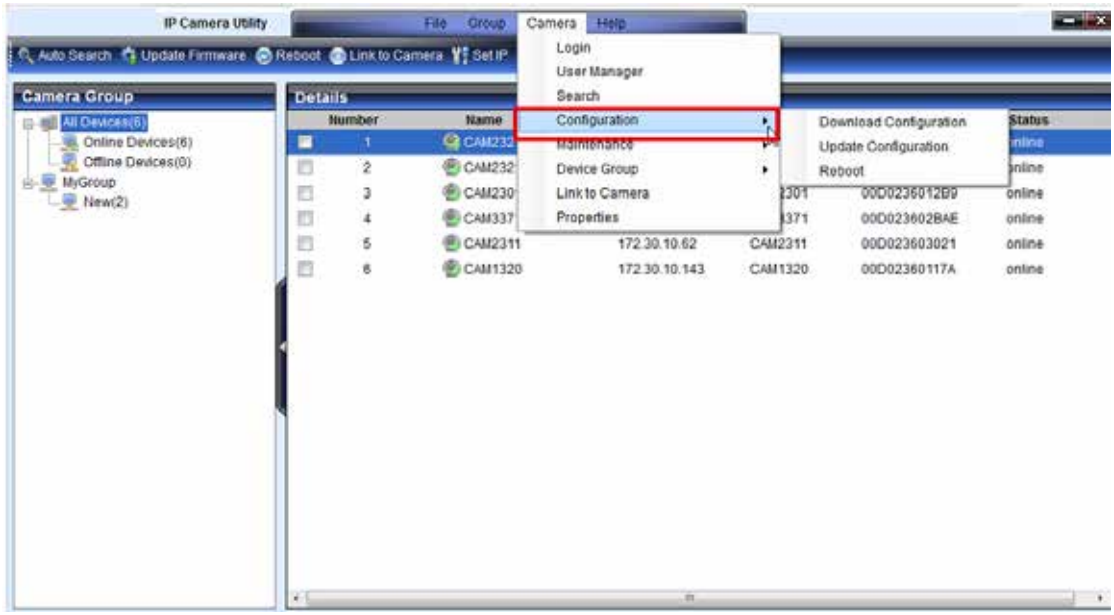

**4.** In the *Select Group* pop-up box select the destination group.

**5.** Click **OK** to copy the selected camera(s) to the group.

# 5.6. Configuration Settings

Configuration can be downloaded and updated by selecting **Camera > Configuration**, or the process can be automated by downloading the configuration from one camera using the **Download Configuration** function, and then using the **Update Configuration** function to upload the changed configuration file.

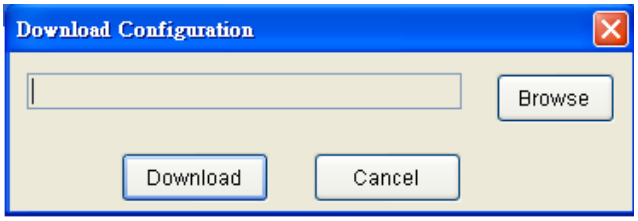


## Download Configuration

This function downloads a configuration file.

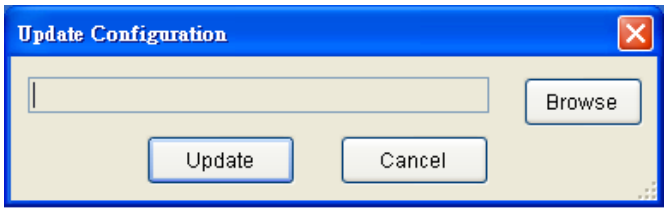
1. Select a camera by checking the box in the first column of its listing.
2. Right-click the camera which you want to download from and select **Configuration > Download Configuration**, or select **Camera > Configuration > Download Configuration** from the menu bar. The *Download Configuration* popup will display.




3. Click the **Browse** button to browse the computer and locate a destination.
4. Click **Download** to download the configuration file to the destination.

## Update Configuration

1. Select one or more cameras by checking the box in the first column of their listing.
2. Right-click the camera(s) which you want to update to and select **Configuration > Update Configuration**, or select **Camera > Configuration > Update Configuration** from the menu bar. The *Update Configuration* popup will display.

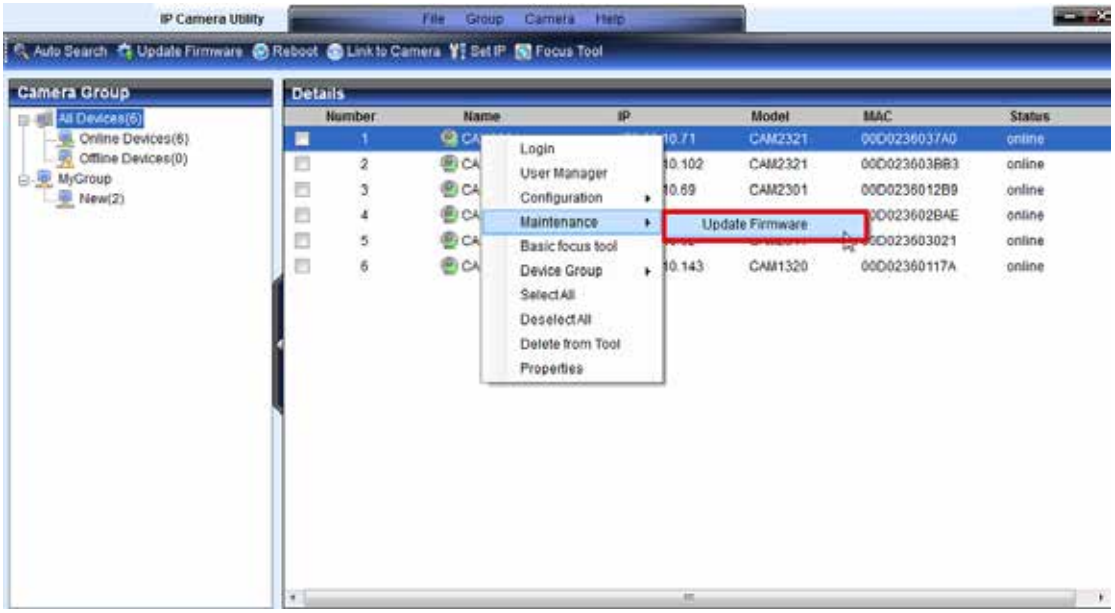


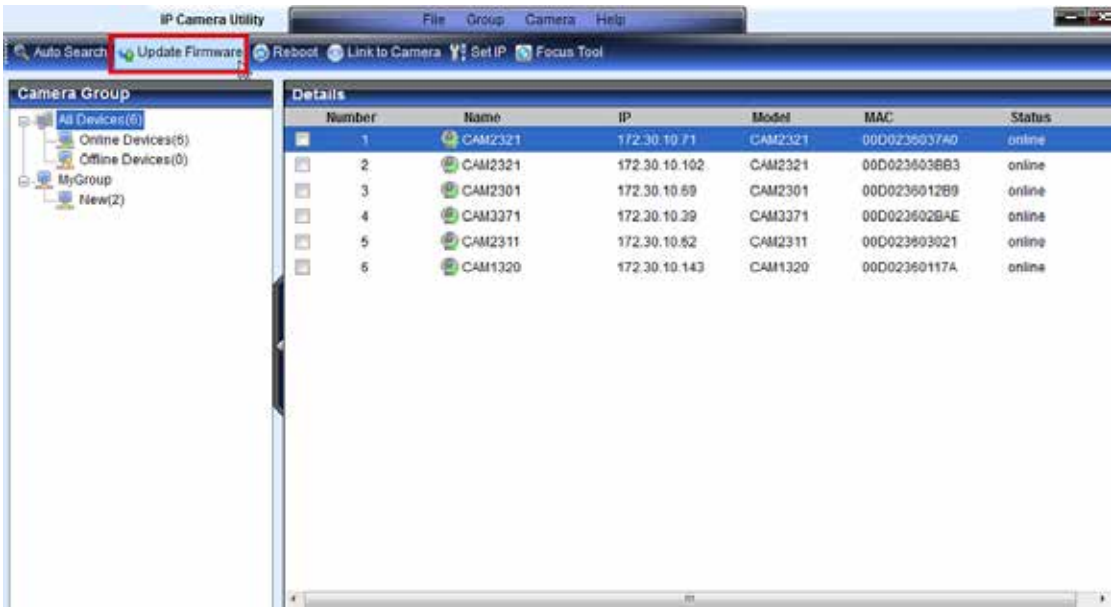

3. Click the **Browse** button to browse the computer and locate a configuration file.
4. Click **Update** to upload the configuration file to the camera(s).

# 5.7. Firmware Actions

## Update Firmware

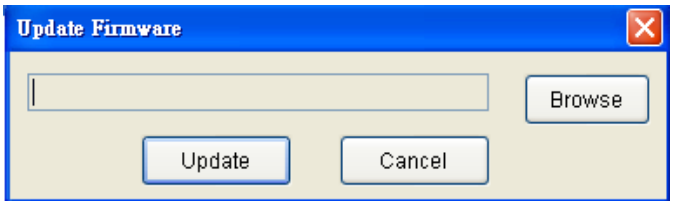
Once a new version of the camera firmware is obtained, the firmware can be updated using the following steps:




**Note:** You must be logged into the camera to update the camera firmware.

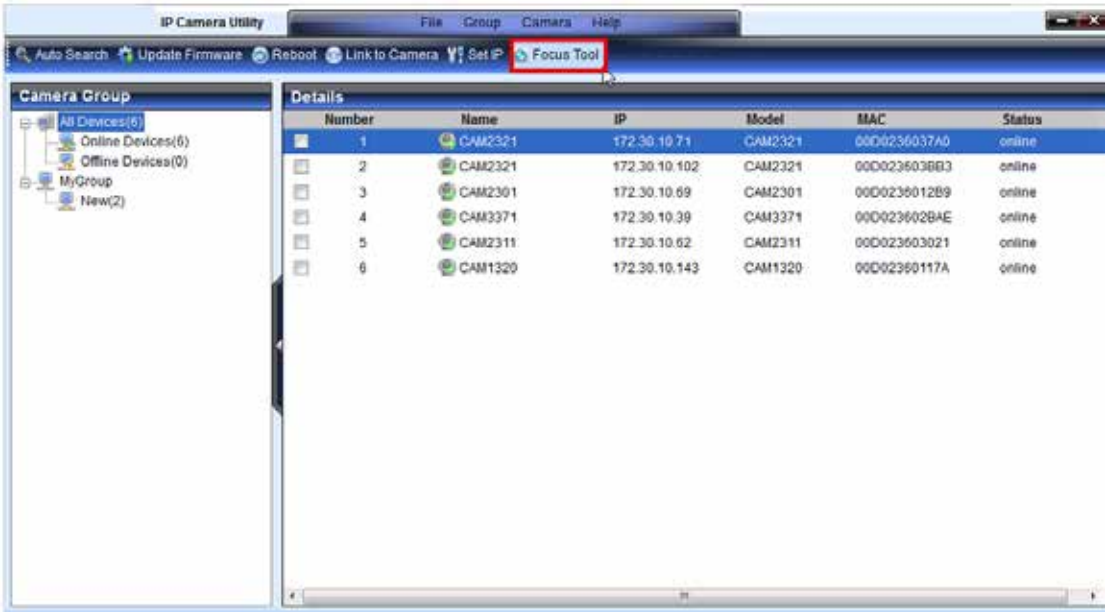
1. Select one or more cameras by checking the box in the first column of their listing.
2. Click the **Update Firmware** button; right-click the camera(s) which you want to update to and select **Maintenance > Update Firmware**; or select **Camera > Maintenance > Update Firmware** from the menu bar. The *Update Firmware* popup will display.



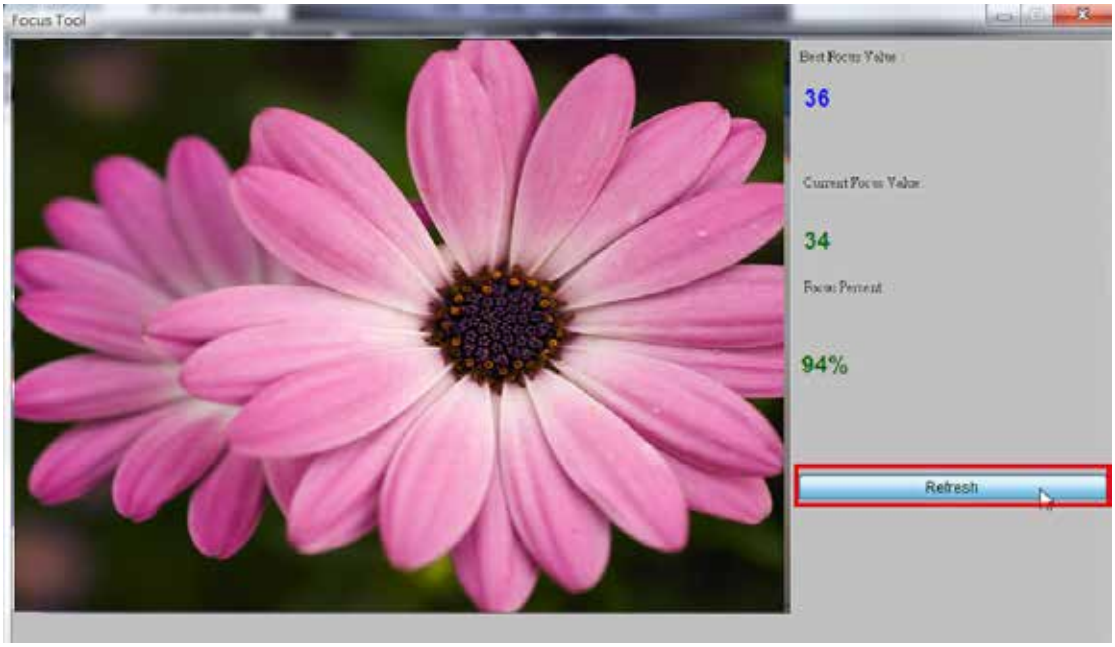

3. Click the **Browse** button to browse the file system and locate a firmware file.
4. Click **Update** to upload the firmware to the camera(s).

# 5.8. Focus Tool

The Focus Tool is used as a reference for focus precision. Click the **Focus Tool** button to open it.




Information of *Best Focus Value*, *Current Focus Value* and *Focus Percent* will be shown at the bottom of the Focus Tool Window. You can click **Refresh** to get a new data after focus adjustment is done.




**Note:** When the Focus Percent is higher, the focus is more precise.